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NEW PUBLICATIONS.

The Planter's Guide; or a Practical Essay on the Best Method of Giving Effect to Wood, by the Removal of Large Trees and Underwood; being an Attempt to Place the Art, and that of General Arboriculture, on Fixed and Phytological Principles; Interspersed with Observations on General Planting, and the Improvement of Real Landscape. By Sir Henry Stewart, Bart. LL. D. &c. First American Edition, from the Second London and Edinburgh. New-York, 1832. Published by G. Thorburn and Sons, 8vo. pages 422, with Plates.

On taking up this book the thoughts are first involuntarily, for a while at least, occupied with its beautiful appearance—the splendid style of its execution. That the work should thus engage the thoughts is a matter of no surprize, when it is recollected whence it emanated—from G. Thorburn & Sons;—for all the horticultural world, at least, knows that whatever is connected with their establishment is a specimen of that taste, and on a scale of that extent, which are not unsuited to a succeeding and more refined generation.

It is certainly an age of wonders, when one can take his breakfast with his wife and children, ride by the aid of steam two or three hundred miles, take his dinner in a foreign land, return in the evening and find the naked hills and vales of his neighbors covered with forest trees of full size. To give the public instructions how to produce this comparative rural effect is the object of Sir Henry. He considers the removal of trees to be by no means a mere mechanical performance, but to involve all the principles that constitute it a science. In advancing these sentiments, he has made some reflections on the deficiency of science in the general practice existing among gardeners, particularly in reference to arboriculture. These strictures, together with claims advanced for priority in placing the art on fixed principles, have excited the umbrage of some in the profession, and served not a little in giving publicity to the work. But science, plainly deduced from the laws of nature, is sure, as the author states in his second edition, to obtain a victory over prejudice or ignorance, however deeply rooted or universal. It is very clear that great violence is done to nature in taking up and transplanting trees, however small. If a professional gardener is required to take up from the open ground roses, for instance, for the purpose of being preserved in and for ornamenting the green-house, *such havoc is made* of the roots that not only the foliage entirely falls off, but the plants are often cut down to naked unsightly stems. As far as our observation has extended, the object which most of gardeners keep in view in transplanting ligneous plants particularly, seems to us merely the preservation of so much of life as is requisite to enable the plant to make new shoots and new roots. Thus the beauty, health, and vigor of the plant are sacrificed for no inconsiderable period of a year at least. But we will not detain our readers from the work itself, as we intend to make copious extracts. We will premise, however, that when the book was announced for publication in this country, we considered it a very inappropriate work, but, in attentively perusing it, we are constrained to mark its publication as a happy era in American horticulture. It will, in proportion as it circulates, do more to raise the standard of science in arboriculture, and we may say in horticulture generally, than any other with which we are acquainted.

The following paragraph may serve to give us some idea of the spirit for planting in Scotland:

"There is, perhaps, no epithet by which the inhabitants of the northern division of this Island, in the present day, can be more appropriately distinguished, than that of a 'Planting Nation,' or, to speak with more correctness, a 'Nation of Planters.' All men now plant, who are possessed of land property, from a wealthy citizen with his villa of an acre, to the powerful Baron with his park of a thousand acres; each according to the extent of his surface, and the measure of his ability."

The argument advanced in favor of cutting off the tops and branches of transplanted trees, is that the branches and roots are relative and correlative parts, and consequently, as the latter are very much decreased in taking up the plant, the former should be diminished in the same proportion. To this it is answered, that it is more in accordance to that sound philosophy of following or imitating nature to preserve the branches, and either to take up the roots or to increase them in sufficient numbers to support the tops and branches. Accomplish this, and all objections to the practicability of removing large trees are obviated.

Not merely the preservation of the roots and branches are requisite to secure success, but many phenomena of nature are to be observed. Among those which Sir Henry points out may be enumerated, in this place, the protection which nature provides for trees in open situations—a thicker and closer ramification of the top and branches, a more abundant spray towards the stormy quarter, an increased induration of the epidermis, and a greater thickness of the cortical layers, all serving as a clothing to protect the ascending and descending sap-vessels from the extremes of weather. Without regard to these provisions of nature, it is equally reasonable to expect an animal from the tropical and carried into the frigid zone would suffer no inconvenience, as that a tree taken from a sheltered and shaded situation would find a genial location in an exposed situation. Accordingly the trees which our author found to succeed the best, were not those which had shown the most numerous roots, but such as had acquired the thickest and coarsest coat of bark, and possessed the stoutest stems, if accompanied with branches and spray thickly set. He ranks these properties in the following order of pre-eminence:—1st, thickness and induration of bark; 2d, stoutness and girth of stem; 3d, numerousness of roots and fibres; 4th, extent, balance, and closeness of branches. If the subjects designed for removal have not these requisites, they should receive that treatment, previously to being taken up, which will produce them. The two former are obtained by gradual trimming, and opening an access to light, weather and wind. In proportion as the body of the tree is exposed, induration of the bark takes place, and the descending sap being slower in its descent is more readily converted into alburnum or new wood. The elongation of the shoots are in proportion to the soft and succulent state of the body, and also of the branches. These properties depend, in a great measure, on shade, moisture, and protection from drying winds. By causing the light and the full sun to reach the lower branches, they are extended, and thus prevent the tree from growing in height only. The roots are, in strength, extent, and number, proportionate to the size, extent and number of the branches—depending, however, in some measure, on the soil. The closeness and balance of the branches depend on a free access of light and winds to all parts of the tree, particularly to the sides previously protected, and on increasing the roots.

Under the head of *Preparation of the Soil* we glean a few particulars. Trees, far more than agricultural crops, require depth of soil. More depends on this than on climate. The depth of pulverization, however, must depend on the nature of the soil and sub-soil. In rich clayey soil it can scarcely be too deep. When the roots are deep the tree is less liable to be injured by excessive rain or drought. Great changes are produced on soils by minute comminution,—changes, ascertained by chemical analysis and investigation, far greater than generally supposed. Soils properly pulverized double their produce. On this subject we quote our author's words:

"Comminution of parts increases capillary attraction, or the sponge-like property of soils, by which their humidity is rendered more uniform, and more effective. It is evident, that where the particles of earth are the most minutely divided, capillary attraction must be the greatest; for gravels and sands hardly retain water, while clays, not opened by pulverization, either do not absorb water at all, or, when by long action it is absorbed in a superabundant quantity, it is not readily discharged. Water is necessary to the growth of plants: it is essential to the juices or extract of the vegetable matter which they contain; and unless the soil,

by means of comminution, be fitted to retain the quantity of water requisite to produce those juices, the addition of manure will be useless. Manure is ineffectual towards vegetation, until it becomes soluble in water; and it would remain useless in a state of solution, if it so abounded as utterly to exclude air; for in that case, the fibres or mouths of plants would be unable to perform their functions, and they would soon drop off by decay.

The temperature of soils, which few planters take into their consideration, is singularly improved by their being pulverized. Earths, as Griesenthwaite remarks, are among the worst conductors of heat which we know; consequently, it would require a considerable time, ere the gradually increasing temperature of spring could communicate its general warmth to the roots of plants, if their lower parts were not heated by other means. To remove this defect, which always belongs to a close or dense soil, it is essentially necessary to have the land open, so that there may be a free ingress to the genial air and tepid rains of spring.

Water, moreover, is known to be a condenser and solvent of carbonic acid gas, which, when the ground is open, can be carried immediately to the roots of vegetables, and probably contributes to their growth. But if the land be close, and the water lie on or near the surface, then the carbonic acid gas, which always exists in the atmosphere, and is carried down by the rains, will soon be dissipated. Let it be observed also, that an open soil, besides being favorable to the transmission of nutriment to the roots of plants, is likewise favorable to their extension, and thereby enlarges the field whence nutriment is derived. Nor are these the only benefits resulting from a friable soil: for, in addition to its being the best adapted to supply the vegetables with food, it is always most suitable for effecting those changes in the manure itself which are equally necessary to the preparation of such food; and animal and vegetable substances, exposed to the alternate action of heat, moisture, light and air, undergo spontaneous decompositions, which, independently of it, would not take place.

He agrees with other writers, that the best soils are those the materials of which are derived from different strata, that have been minutely divided by air and water, and intimately blended together. Fresh manure should be avoided.

"My practice," says Sir Henry, "has been diligently to collect and make up masses or heaps of compost, in different parts of the grounds, adjacent to where the trees might be wanted, and to have them always ready for use, of not less than six months old. These masses are compounded usually in the following manner: First, quick-lime recently burnt (called in Scotland 'lime shells') with clayey matter, for the light land: Secondly, mild lime with sandy soil, for the aluminous; and Thirdly, quick-lime with peat-moss, for the loamy. To each of the two soils first mentioned, I usually give an addition of about a third part of the peat compost; and procuring the peat in rather an advanced state of decomposition, its speedy preparation is more easily brought about."

* * * * *

No tree transplanted should have less than from eighteen inches to two feet deep of mould, prepared and enriched according to the above principles, to some distance round the plant.

* * * * *

In executing the trenching, if the pit be to stand for a twelvemonth or more, before transplanting, the compost is to be laid down in half-loads round the stake, which marks out the site of the pit, and at such a distance as not to obstruct the workmen. The dimensions are then to be marked out for middle-sized trees, of from five-and-twenty to eight-and-twenty feet high, in a circular form, and at two "spades" and a half distant from the stake, or about eighteen feet in diameter. This is the mode of measuring usual among our workmen; the spade being that superior and efficient implement, about three feet eight inches long, called the "Scotch spade," with an iron handle at the upper end of the shaft, and not the common garden spade, which is of little use, except for stirring loose mould.

Supposing the subsoil to be sand or gravel, and of a sufficient depth to admit of the pit prescribed, the next thing to be done is, to wheel away, from the side at which you are to begin, as much earth as will close in the last trench, and to lay it down for the purpose on the opposite side of the pit. The compost being of two kinds, clayey, and peaty, as already described, should be dashed on, or scattered like lime upon a field, as the trenching proceeds, over the entire surface of the work, so as to mix the whole in the completest manner; and when the trench is closed in at the further side, it should lie for a twelvemonth, as before stated.

Supposing, on the other hand, that the soil be deficient in the competent depth (a thing which has unfortunately too often happened at this place,) there is no remedy but to supply the want with earth brought from some other quarter. A few cart-loads are all that, in most instances, are required; and a little practice will teach the planter to procure it, from the cleanings of drains or ditches, from natural hollows in woods, and such like places, where calcareous earth is sure to be collected. The best way is to take it out in strips or lines of only one spit wide, and of the same depth; by which means, no material injury will be done to the ground by the operation.

In supplying such earth, let it be remembered that rich mould is not essentially necessary, and that soil even of a *very* inferior quality will answer the purpose. Every one must have observed the readiness with which the roots of trees find their way into a mound of earth of *any* quality whatever, that has been stirred, and consequently comminuated, by being forced up beyond the natural level of the surface: a fact which demonstrates in a striking manner the justness of the principle, that to render any soil pervious to air and water, and to render it fertile, are almost synonymous terms. With a mass of earth so prepared, and to between eighteen inches and two feet out beyond the length of the roots, both roots and branches will soon be stimulated to greater multiplicity and more vigorous extension; and the former may be then safely trusted to seek food for themselves, over the natural surface of the ground. Should a still greater range of pabulum, or of deepened soil, be requisite for particular trees, it will be easy to provide it after the trees are transplanted; as such masses of earth, as these pits contain, can be extended at pleasure, and both the shape and the quality of the ground at the same time be improved.

Supposing the soil and subsoil to be clayey and tenacious, particular caution must be observed in trenching, to leave the substratum untouched; and the safest method in all cases is to penetrate no deeper than the improved and friable mould extends, which is always permeable by moisture. But, should the workmen unfortunately, through ignorance or inattention, penetrate such a subsoil, a pool of water would be formed by the first rains that fell, of the size of the pit, where, being held as in a cup, the roots of the tree would be chilled on its removal, and the tree itself probably killed in the first season.

In reference to close wood plantations we extract the following:—

When the plantation is marked out, the first thing to be done is, soon after the autumn, to trench, or double-dig the ground, eighteen inches deep, in light or silicious soils, and twenty inches at least in clayey or aluminous. During the course of the trenching, if a manuring of compost can be spared, it is an obvious improvement to dash it on, over the slope of the earth thrown up, in order to promote a comminution of, and to give an incitement to, the new earth, which had never before been exposed to the air. But that is not essentially necessary in this stage of the business.

By the month of April the winter frosts will have mellowed and made friable the new soil, especially if aluminous; which greatly assists the pulverization or comminution of its parts. The ground is next well dunged for a potatoe-crop, with ordinary animal manure, or better, peat compost, made with farm-yard dung, according to the fermenting process of Lord Meadowbank, and twice heated and turned. In default of compost during the trenching, particularly if the subsoil be clay, it is advisable, soon after the potatoes are planted, to hoe into the drills as much slacked lime, in fine powder, as is generally used to a wheat crop, that is, about a hundred and fifty or sixty bushels per acre. This treatment surprisingly tends to comminuate the subsoil turned up; it brings the hard or inert substances contained in it into a state of decomposition or solution, and renders them the proper food of plants. If the process be conducted with common judgment, the value of the potatoe-crop cannot be less than from £20 to £25 per Scotch acre (I have myself drawn £30 under favorable circumstances); and it fully pays the labor and manure laid out, and perhaps some rent besides. By the succeeding season, the ground will be in a good condition to be planted; after which, it should be kept with the hoe for three years.

In so far, then, the mode of preparing the ground for close plantations is superior, in point of economical arrangement, to the preparation for open dispositions of wood, as it is clear that it may be prepared *without expense to the owner*.

Much stress is laid on subsoils. We give his opinion of what constitutes a proper and an improper one:

The most favorable subsoils are those through which the excess of water, received in rainy seasons, is allowed slowly to percolate, and which retain moisture sufficient for the sustenance of plants. First, close-lying strata: in which a considerable proportion of sand and fine gravel is intimately mixed. Secondly, free-stone; provided a bed of hard and impermeable clay do not intervene between it and the soil, which sometimes happens. And thirdly, a kind of greenstone (Scottice, rotten whin,) which is the most favorable of all, when there is over it a sufficient depth of mould, for the above purposes. * * *

The subsoils of an unfavorable quality are: First, such as are composed of dense and argillaceous substances, through which no water can pass, it being retained stagnant at the bottom of the soil. In this situation, it has the most injurious effects, not only by chilling the roots that reach it, but by disabling the soil from exerting that sort of repulsive force, which, as has been seen, is necessary to fertility. Secondly, those open beds of loose stones and sand, from the bottom of which water is readily drawn off, by subterraneous outlets. These strata are sometimes continuous, but they oftener occur in narrow lines or strips; they are named "scalds" by the Norfolk farmers, and are as injurious to crops in a wet as in a dry season. Thirdly, there may be added those extensive ranges or strata of dry rocks, of a hard texture, composed of slate, sometimes granite, but most commonly of gneiss, accompanied in some districts with a considerable proportion of iron, probably in the state of orange oxide. These rocks run in long ridges through the districts where they lie, sometimes narrow, and sometimes of a considerable breadth. They are dry to a great breadth, and full of fissures, through which the water quickly passes. The orange oxide always appears in thin lamina among the fissures. As they are, like the sandy bottoms, not retentive of water, all vegetation is destroyed in dry seasons, on the soils which cover them, and woods, were they planted there, would share the same fate. When these rocks are near the surface, the ox-

ide with which they abound is generally injurious to vegetable life, and trees die as soon as their roots come in contact with it.

The section in which he treats of the Preparation of the Trees for Removal, has many interesting observations. We have, however, space for but a single extract. After stating that much attention should be given to the protecting properties heretofore mentioned, he gives the directions for single trees when there is a deficiency of roots and branches:

To meet this difficulty with any counteracting effect, I have found but one method, which, although opposite to gardener's practice, is deserving of the notice of the planter. Instead of digging among and disturbing the roots for the introduction of manure, let about a cart-load of peat-compost be taken, carefully prepared, as above, and in the most perfect state of pulverization, or coal ashes of a like quantity, for a tree five-and-twenty feet high; to which let four or five cart-loads of any tolerable soil be added, of an opposite quality if possible to that of the ground; and let the whole be laid down round the tree, and about four feet out from it. Let three workmen proceed to throw these materials close to the stem, two throwing the earth, and one throwing the compost in a regular manner, and scattering the whole in the way of lime on a field of fallow. Let the workmen next half-trench the heap, as directed above in the foregoing section, and intimately mix and toss it backwards and forwards, for the same purpose. Lastly, let them spread it in a sloping direction outwards, to the extent of the roots; keeping it at the extremities four inches thick, and at the stem about three times that thickness. Should there not be materials enough to accomplish this, an additional quantity must be procured. Into this loose and friable mould the genial rains of spring will readily enter, and, carrying with them the carbonic acid gas of the atmosphere, render the whole the most desirable food for plants. Thus excited, the fibrous roots, which always strike upwards, will, during the first year, nearly pervade the mass; by which means, both the roots and the branches will soon be improved, and the tree itself be in a proper condition for taking up after the third or fourth season.

When the roots are long and scraggy, a trench is to be cut around at a depth sufficient to shorten the roots, taking care to prevent water from standing in the ditch.

The next section is devoted to the Taking Up and Transportation of the Trees. The utmost carefulness is observed in preserving uninjured not only the larger roots, but the fibres. For this purpose suitable implements are provided and experienced workmen obtained. After being taken up, the tree is transported on a simple machine, of which a drawing is given. Contrary to the practice generally recommended, the side towards the stormy quarter, which generally has the shortest branches and thickest spray, is reversed. By this means the branches, as they grow, become balanced, and the trees assume a more regular and beautiful shape. The most remarkable fact stated is that none of the trees require props or support—so well is the whole business performed.

The attention given to trees after they are set out consists principally in stirring the ground about the body, and in watering the roots during dry weather. We cannot refrain from extracting the two following paragraphs:

It has been calculated by some arboriculturists, and probably with correctness, that a young plantation judiciously prepared, and afterwards kept clean with the hoe, for seven or eight years, will grow more within that space of time than it would in twenty years, by the ordinary method of planting, without such preparation and keeping. If this be true, I believe it may be said, with at least equal justice, that close plantations of removed wood, if properly executed, and kept with the hoe for three years, are equal to ordinary plantations of at least forty, or five-and-forty years' standing, in this climate. At the end of four or five years, they will branch out on every side with such luxuriance as to require the utmost industry of the pruner to restrain them within due limits: and yet it is indispensably necessary that they should be so restrained, in order that the standard or grove trees should be kept spiral, and the underwood subordinate in its character.

Upon the whole, I may assert with truth, after the experience of more than forty years, that there are no plantations at this place which exhibit the same general health, and progressive vigor, as the Removed Woods, whether it be in open groups, or close plantations, as the committee of the Highland Society has amply attested. And, should they continue by the one-half only as rapidly progressive, for the time to come, the axe must interpose, in order to prevent them from obscuring the glades, or blotting out the distances of the landscape.

A Committee of the Highland Society of Scotland made, in 1823, a very favorable report on the success of Sir Henry. The Committee consisted of The Right Honorable Lord Belhaven; the Honorable Lord Succouth; Sir Walter Scott, Bart.; George Cranstoun, Esq. (now Lord Corehouse); Alexander Young, Esq. of Harburn; G. Laing Meason, Esq. of Lindertis; Lieutenant-General Graham Stirling, of Duchray; G. Hamilton Dundas, Esq. of Duddingston; Dr. Robert Graham, Professor of Botany in the University of Edinburgh; Dr. Andrew Coventry, Professor of Agriculture.

From this report we will detain our readers in gleaning a few facts. The park consists of more than one hundred acres, in which between six and seven hundred single or scattered trees, besides various clumps and masses, and much underwood, were transplanted—producing an effect "extremely striking." The only difference which "the most accurate eye" could discover between the trees planted within six months and those of a much longer time, was in the leaves which were somewhat smaller, "a distinction which, as we observed',' say the Committee, "in other instances, usually disappears after the first, but always after the second season." The Committee speak of "the singular beauty and symmetry of the trees; the uncommon girth of their stems, in proportion to their height; and the complete formation of their branches and spreading tops"—all owing mainly to a course of *previous training*. They notice—

The surprising health and vigor of the trees, considering the exposures in which they are placed, and the complete and perfect preservation of their branches, notwithstanding the operation of removal.

In all, or most other specimens of transplanting, whether in this country or in England, it has been the uniform practice of planters, to lop and lighten the tops, to prune off the side-boughs, and often to pollard or decapitate the trees altogether. But, according to Sir Henry's improved and skilful method of managing the process, the necessity of this unsightly mutilation is completely obviated; as in *his* trees seldom a twig or a branch appears to decay, in consequence of the operation. Thus, the *peculiar conformation and character* of each tree are preserved; but it is obvious that by pollarding, or even severe lopping, *both* would be wholly destroyed. The above remarkable fact was clearly proved to us, by viewing trees of various sorts, in every stage of their progress, from the first year to the tenth, and upwards. It would be difficult to discover that the trees had not grown from the seed, in the situations which they occupy, were it not for the ring of dug ground, which we observed round many of them, making a space, which is usually kept with the hoe for three or four years, in order to promote their growth; and that labor is continued, until they begin to shoot with freedom.

The third circumstance which we shall state, and which seemed still more surprising to most of us, who had ourselves attempted the art, than either of the two above mentioned, is, that no *prop or support of any kind is ever used at this place* to trees newly planted. So firmly are they placed, and so perfectly do they seem prepared to resist the elements, that in very few cases was any inclination observable, from the west and south-west, which are well known to be the most stormy quarters. This due balance of the transplanted tree is much aided by Sir Henry's practice, (contrary to the rule generally observed,) of reversing the position of the tree in its transplanted state, and turning to the south-west, or stormy point, that side, where the branches had been longest and most luxuriant in the original position, precisely because they had shot more towards the north-east, or sheltered aspect. It does not appear, that the growth of the tree is in the least degree retarded by this change, which otherwise produces the effect of balancing the tree against the storm, and, by bringing its branches to a regular shape, adds to its symmetry.

It is not owing merely to the balance of the branches that the trees are supported without props, but to "a new and peculiar method of disposing and securing the roots under ground at the time of removal," by which "a very considerable force may be applied without throwing the tree down, *before* any earth has been laid on the roots." The Committee say: "For agricultural purposes, likewise, the art may prove eminently useful, in sheltering grounds which are dedicated to pasture. But to cover mountains with wood, to raise extensive forests, or even the broad bounding lines of a gentleman's place or park, the art would, for obvious reasons, be misapplied." Sir Henry considers the transplanting of large trees to be the cheapest way to produce picturesque effect. Be this as it may, no person who has the means will regard a trifling extra expense when he can produce almost at once what would require from twenty to fifty years in the ordinary way. We should recommend all those who are desirous of improving the rural appearances of their residences to purchase the book. To corporations of cities the subject is of much importance. Public grounds could thus be rendered a source of pleasure and enchantment to the generation at whose expense they are ornamented.

The American Orchardist: Accounts of the Most Valuable Varieties of Fruit, adapted to the Climate of the United States, from the Latitude of 25° to 54°, with Uses, Modes of Culture, Management, &c. &c. By William Kenrick, Boston, 1833, Carter, Hendee & Co.

This is a handsomely executed 12mo. work of 420 pages, sold at $1.50. When we have read it we will furnish our readers with more data to judge of its merits than the mere title page. We have every reason to believe that Mr. Kenrick has furnished the farmer and gardener a desideratum. It is gratifying to see an increasing attention given to arboriculture. Our country is destined, we trust, to make rapid advances in this pleasing science.

Bone Manure—Report of the Committee of the Doncaster Agricultural Association, on the Advantages of Bones as Manure, founded on returns received in answer to the queries issued by the Committee. London, 1829.

When it is considered that bones make one of the most valuable of manures, and that they can be had in large quantities, the question arises, why are they not in demand among farmers? Why are the bones from the tens and hundreds of thousands of cattle that graze on our hills and in our vallies, and that are annually slaughtered, suffered to waste in the desert air? Simply because the farmers of this country are not accustomed to use them. Another reason is that we have not in the United States any suitable mill for grinding them to powder. We are happy to state, however, that Mr. John Hornby, who deals extensively in this article, and whose establishment in this city is on the 9th Avenue, near 25th street, authorises us to state that he intends to erect a mill, and that he will be enabled in the spring to execute orders for broken and ground bones. He informs us that it will answer his purpose to dispose of them in the shape of manure to farmers, better than to exporters. At present the demand for good bones is for various purposes of manufacture—combs, tooth brushes, umbrellas, and numerous other articles. Refuse bones are exported to England for manure.

According to Foureroy and Vanquelin, ox bones are composed of animal matter 51, phosphate of lime 37.7, carbonate of lime 10, phosphate of magnesia 1.3.

We are in a great mistake respecting the spirit now pervading our country, for agricultural improvement, if our readers, particularly those in the vicinity of this city, do not, on perusing the following report, avail themselves of the first opportunity to try the efficacy of bone manure.

We will not detain our readers from the interesting and important extracts any longer than to suggest the propriety of greater economy respecting the collection and preservation of bones—of having a box or barrel standing in some convenient place near the kitchen, into which bones and other substances should be thrown. Many a family would be very considerable gainers by dispensing with a dog, and saving the bones usually given to them.

The Committee at their first meeting prepared a list of queries to be submitted to the farmers, with a view of eliciting the necessary information: these were in the following form:

1st. How many years have you used bones?
2d. How many acres have you boned each year?
3d. Were the bones which you used raw, or had they undergone any process of manufacture?
4th. What size were the bones?
5th. What quantity have you put per acre?
6th. On what sort of soil?
7th. At what time of the year, and for what crop?
8th. In what manner applied, drilled or otherwise?
9th. State what mode you prefer?
10th. What effect on the crop?
11th. What effect on the succeeding crops?
12th. What was the price of the bones?
13th. Do you continue to use them?
14th. What other purchased manures have you used?
15th. State the effect of them?
16th. State the effect of them as compared with bones?
17th. State generally any particulars you know on the subject of bones and other manures.

They also laid out into districts the extent of country over which their inquiries were to run, and these districts were allotted among the members of the Committee; each member undertook to send the inquiries, and as far as possible procure returns from the farmers within the district, and was considered at liberty to extend them as much further as he pleased.

In consequence of the queries sent out, returns were received from about fifty persons, comprising a most valuable body of experimental evidence, and furnishing the facts detailed in the Report.

REPORT.

In reporting the result of our inquiries on the subject of Bone Manure, we are desirous simply to condense the several facts, opinions, and suggestions which have been furnished by our correspondents. It will indeed be proper to attempt, from the mass of particulars, to deduce the principles which govern them, as the only mode in which such a mass can be made generally useful; and such deductions we desire to draw from the proofs before us, and not from mere theory or opinion. The very basis of our system of inquiry has been, that experience is the only guide, and theory and opinion unsafe.

The simple question is, are bones useful as a manure, and to what extent? But to answer it, we must first consider it as respects different soils, whether sand or gravel, clay, loams, limestone, peat, or warp. Even these divisions, when about to be acted upon, will be found varying in other particulars, as moisture and quality.

Beyond the various kind of soils, there are considerations in its use—as to the particular stage of cropping it applies to—grass or arable—in arable, whether on the fallow or the white corn crop, on the seeds or on the last crop, and in all at what period of the year. To all these again we must add the manner of application, whether as raw, or after passing through processes of manufacture—in what quantity—of what size—and whether broad-cast or drilled.

On the clay and loamy soils the returns are not so numerous, but sufficiently so to warrant definite conclusions. These comprise the clay district lying north of Rotherham, and the occasional occurrence of it in this neighbourhood. On the peat which is found in and on the borders of the level of Hatfield chace some interesting returns are made; and it is only upon the warp (which is an alluvial soil almost peculiar to the banks of the Trent and Ouse) that a single return is the limit. These soils we deem a fair specimen of those usually classed under the same names throughout the kingdom.

It would appear that the use of bones within the district we have alluded to is of very modern introduction, the average of returns would not reach twenty years, and only one alludes to their use beyond the term of forty years. Colonel St. Leger, then residing at Warmsworth, was the first person who is known to have used them, and his introduction was in 1775. Mr. Horncastle's experiment in 1794, which will be subsequently alluded to for the purpose of explaining their ill success, was another of the earlier efforts; the early progress does not seem to have been rapid, from the practice of laying them on almost unbroken and in very large quantitias; and it is only within the last fifteen years, when the practice of grinding them was introduced, that they have excited general attention.

The returns received satisfactorily establish the great value of bones as a manure, though "experiments on manure in this varying climate are not much to be depended upon. The seasons, whether wet or dry, the previous state of the land, and the component parts of it, all tend to make experiments doubtful in their comparative results. Yet, where a course of practice so long established as the use of bones has furnished such an amount of experiments, all doubt may at once be discarded." Our correspondents, with only two exceptions, all concur in stating them to be a highly valuable manure, and on light dry soils superior to farm yard dung and all other manures. In copying the language of one of them with reference to dry sandy soils, we express the opinions repeated in the far greater number. "I consider bone tillage one of the most useful manures which have ever been discovered for the farmer's benefit. The lightness of carriage, its suitableness for the drill, and its general fertilizing properties, render it peculiarly valuable in those parts where distance from towns renders it impossible to procure manures of a heavier and more bulky description;" for as stated by another, "the carting of six, eight, or ten loads of manure per acre for one mile only is no trifling expense." "The use of bones diminishes labour at a season of the year too when time is of the first importance, for one waggon load of one hundred and twenty bushels of small drill bones is equal to forty or fifty cart loads of fold manure."

The preceding paragraph, our readers will perceive, brings into view the economy of keeping horses. In estimating the saving in using bone manure, not only diminishes labor, but may enable the farmer to dispense with one or more horses. It is possible by the substitution of one kind of manure for that of another, to make very considerable reduction of expenses, and greatly promote convenience. We proceed with our extracts:

Upon very thin sand land its value is not to be estimated; it is not only found to benefit the particular crop to which it is applied, but extends through the whole course of crops; and even in the succeeding courses its effects are visible in the improved quality of the land, and the efficiency of a smaller quantity than would at first have ensured a crop. The Hon. J. Simpson states, "that upon much of the high land about Babworth, which is a light sandy soil, the crops under the ordinary farm management were comparatively unproductive; but that since the introduction of bones, after having for several fallows been dressed with sixty or seventy bushels per acre, not only have they become productive, but so much improved in quality as to return an equal crop with a much lighter dressing of manure or bones throughout the next course."

On the dry limestones near Doncaster the same favourable results have been obtained, and no failures, beyond those attributable to peculiarity of season, are noticed. On the Yorkshire wolds it appears that on Sir Francis Wood's estate at Garrowby, "by the frequent recurrence of turnips, the crops dwindled to nothing, and the fallows, though tolerably manured, were covered only with galeopsis tetrahit (common hemp nettle), spergula arvensis (spurry), and other weeds, instead of turnip plants. By the use of the very small quantity of twelve to twenty bushels of bone dust in drills, the turnip crops are now rendered excellent, and the following crops very considerably improved." Of the Lincolnshire wolds, the facts collected by Mr. Beckett Denison of Doncaster are equally striking, embodying the experience of fifteen or sixteen extensive farmers. "Before bones were generally used with turnip seed, many thousand acres were annually sown for that crop without any manure whatever; from the impossibility of getting fold manure for more than one-third or fourth of their fallows. The turnips upon such unmanured land were consequently very indifferent, and the benefit of sheep feeding upon their tops (for bottoms they had seldom any,) was very trifling. Since the use of bones has become general, the turnip crop has been in many instances tenfold, and in few less than four or five-fold its former bulk. All the succeeding crops of grain and seeds have been amazingly increased; and upon the four or five shift system there is no doubt the land will go on pro-

gressively improving, requiring a less quantity of bones annually, from its increased fertility and power." These limestone soils are generally near the rock or chalk.

On the light loams the reports are favourable, giving it a preference to the ordinary dressing of farm-yard dung. On the heavy loams and clays the experiments are unfavourable. It is laid down as a necessary qualification in a soil for bones that it should be dry, and only one exception appears in the whole of the returns. Mr. Marsden, upon what he describes a wet sand soil, with an irony coloured subsoil, drilled two quarters per acre, and had an excellent crop, where manure had been previously tried without effect. But these experiments being made in the years 1826 and 1827, which were unusually dry, may serve to explain the fact, and preserve the common principle unaffected. We are upon this principle authorized to infer, the clay soils are in general too moist to receive any considerable benefit from bone tillage.

Upon peat soils, observing the principle that they must be previously laid dry, the advantages of bone manure are reported to be very striking. From fifteen to twenty bushels of dust per acre, drilled, have found to surpass very far the ordinary dressing of farm-yard dung, and even lime and pigeons' dung.

Two reports on this head, which are unfavourable, are explained by the fact of the peat being moist and not sufficiently dried.

The single report upon warped land which we before alluded to is decidedly favourable, but this was not upon river warped land, but warped by trenching.

Upon gravels little is said, and that little contradictory in the letter, although reconcilable in principle. A gravelly soil may embrace every variety of texture and quantity, from the light dry sand to the waterlogged yellow clay; preserving in each the necessary admixture of stones and grit. Upon the light dry gravel, one report is favourable, though in another a strong opinion is hazarded against even dry gravels. But the report on wet gravel is decidedly unfavourable, according in this with the general principle.

To the general testimony to the excellency of this manure, we may add the following particular facts of its durability. "On a field, part of which was boned fifty years ago, the crops were on that part visibly better for fifteen or sixteen succeeding years than the remaining part, although the land was all of the same quality; and part not boned was manured with farm-yard dung. In another case, "about three acres of light sandy land were boned with one hundred and fifty bushels per acre by mistake, and although it was as far back as the year 1814, the land has never forgotten it, but is nearly half as good again as the other part, farmed precisely in the same way with the exception of the one dressing of bones."

It is noted as the peculiarity of bones, to succeed upon dry soils, and in dry seasons, when common manure loses much of its efficacy. Mr. Birks remarks, "I have noticed the turnips of my neighbours who have used ten loads of one year old fold manure, have been nearly destroyed by the fly, while mine with bones, and two year old fold manure, and a previous slight top dressing of Knottingley lime, have been but slightly injured. I think a quantity of the egg or grubs which produce the fly, is generated in the one year old fold manure, that the continued sunshine matures them, and for want of rain or cool weather to thin them, they all come into action against the plant. With the use of a small quantity of two year old manure with the bones, a less number of the insects is brought to life. There is also a disease in turnips called fingers and toes, which is occasioned by an insect within the turnips. I am confident my turnips have been less subject to this disorder than those grown on one year old fold manure. In thin, sandy, and porous soils, and where the sub-soil is gravelly, also on the sides of hills, much of the essential part of fold manure and of rape dust and other top dressing is often washed away by rain. If there is a long succession of heavy rain, the loss to such manure is very great. In very hot and dry seasons, the virtues of fold manure are also suddenly evaporated. But on dry land, bone manure in all seasons and under all circumstances is durable." In Mr. Williams's experiments on a light sand in 1827, he states, "this being a particularly dry season, the only good Swedes was with bone manure, and I never had a better crop. I this year tried an experiment of bones against farm manure for Swedes, and found the bones superior." The general experience is decidedly in favour of a dry season being suitable for bones, although it is seen, that in the excessive drought of 1826-7, many failures even with bones are recorded. We have two opinions of a moist season being most favourable to the action of bone manure. Were it not that the parties giving them had used bones, the one eighteen and the other twelve years, we might conclude the opinion had been formed from the results of those extraordinary years; we would, however, infer as the explanation, that the soils on which they appeared were more than usually dry and liable to drought.

The beneficial effect upon the after-crops from bones applied to turnips, is (in conformity with the opinion notoriously current in this neighbourhood) stated "to depend mainly upon the turnip crop itself." If that crop is heavy the eating them off by sheep is believed to add more to the fertility of the land than even the bones themselves. In proportion to the number of sheep which can be fed per acre is the benefit to the land. The results on the Duke of Newcastle's estate, may be taken as the experience of every farmer upon the like soils: "whenever a crop of turnips is obtained upon dry sandy or gravelly soils, the succeeding crops of corn and grass seeds are usually abundant, except in very dry seasons; but whenever turnips miss, the subseqent crops of corn and seeds are seldom productive, unless assisted by an additional quantity of manure. It must be obvious, therefore, that any measure which will reduce this crop to a greater certainty is of the highest value.

Concurring with these proofs of the excellency of bones, it is highly gratifying to find proofs of a rapidly extending demand for them. In no one return, in answer to the query in our circular, Do you continue to use them? has the answer been in the negative. The impression which is prevalent in our neighbourhood, that he is not to be accounted a good farmer who does not use them, is echoed from the wolds of Lincolnshire. In Berwickshire it appears "their use is rapidly increasing, and every person who has made trial of them seems quite satisfied of their utility." * *

Having now endeavoured to give an outline of the results of the use of bone tillage, we must descend into the practical details of the time and manner of its application. To consider first the time of its application, we inquire, on grass land or on arable?

Upon grass the returns are not numerous; those which are received are very favourable, and state the herbage, whether for hay or pasture, to be increased in quality and quantity. Six hundred bushels of small bones were in 1822 spread upon twenty-four acres of grass land in the dairy farm, Clumber Park, consisting of dry sandy and gravelly soil which had been laid down about ten years. It had a very good effect, the cows depastured on it were in better condition, and about twice the quantity of butter was gathered from them than from cows depastured upon land of similar quality, but not boned; and this effect still continues. Mr. Birks observes, "with respect to grass land, the extent of the fertilizing quality of bones is still greater than on arable." Valuers usually estimate the allowance to a quitting tenant with respect to Sheffield bones, by supposing them in tillage land and on meadow ground exhausted in four years; but in grass land depastured they are considered to be exhausted in eight. But if alternate lands of a pasture field were tilled, one with common manure, the other with good bones, the great superiority of the latter would be visible for twenty years.

Upon arable, we have to consider the stage of its introduction into a regular course of management. The whole of our correspondents adopt the application upon the fallow, and thirteen have also used it for the intermediate crops, particularly the last crop in the course. The effect of its application to the intermediate crops is not very carefully separated from the effects upon fallow; but we seem authorised, in the absence of any observation to the contrary, to infer, that the effects are good, although from the greater prevalency of the fallow application, this may be considered preferable. If the seeds are manured on the plan before recommended, there will be little need of the bones for the last crop; but if the manure is needed, bones are found to answer the purpose. The effects of rape dust and other manures called artificial will be subsequently stated.

Upon the fallows, the general time of applying them is previously to or at the same time with the turnip seed in May, June, July, and August. For the intermediate crops, the bones will be applied with the seed.

The next point of inquiry is the manner in which they are best used; this embraces as well the method of putting them into the land by drilling or broadcast after they are prepared, as also the best manner of preparation, whether broken, large or small, whether raw or after having undergone processes of manufacture, and whether singly or mixed with other manures. The remaining branch of inquiry will be the quantity.

First, then, as to the drilling or broadcasting; the great weight of evidence is in favour of drilling, although the contrary course is held by some very intelligent farmers. A third mode is acted upon by others, of sowing them broadcast, and gathering them into ridges with a mould-plough. Mr. Workman prefers broadcast for barley, and the Rev. G. Wright and Mr. Weldon prefer broadcast for the white turnips, although in other cases they give the preference to the drill. * * * *

In their preparation a decided preference seems to be given to bones broken small, and the half-inch bones are those most generally used. Mr. Birks states, "If I were to till for early profit, I would use bones powdered as small as sawdust: if I wished to keep my land in good heart, I would use principally half-inch bones, and in breaking these I should prefer some remaining considerably larger." Reasons for this belief are thus stated by Mr. Woodcock: "By using bones of a large size with dust in them, I think I have sufficient of the small particles of the dust to set the turnip crop forward, and sufficient of the large particle of the bone left to maintain the land in good condition for the last crop."

The quantity, however, is on all hands allowed to depend almost entirely on the size of the bones. It appears that in the earlier stages of their use, before they were commonly ground down, as much as an hundred bushels and upwards were laid on per acre. Now the average of our returns, although we have reason to believe it is much above the general average of the country, amounts to about thirty-nine bushels per acre. * * * * *

The best judgment we can come to upon the facts before us warrants our conclusion, that an ordinary dressing of bone tillage broken down to the smallest size above dust is twenty five bushels, and of the half-inch and inch bones forty bushels; that this would be the quantity requisite on land of ordinary quality, and in an ordinary state of cultivation; the poorer or worse cultivated lands requiring a greater quantity, and those in a higher state of cultivation or richer, a less.

Another point with respect to the state of the bones is whether they are preferable in their raw state, or after they have passed through an

oil or glue manufactory. It is acknowledged by our correspondents to be a prevalent opinion among intelligent farmers, that manufactured bones are equal in their effects to the raw bones. Mr. Short states an experiment he made in the year 1812: "He boned twenty-four acres at the rate of fifty bushels an acre—on one part he put London bones, having had the oil stewed out of them; and another part was tilled with bones collected from Nottingham, which were full of marrow; and a third part with horses' bones, having much flesh upon them. He could not see any difference in the turnips, they all being a good crop; but the next crop was not so good where the fleshy bones had been laid." He adds it as his firm opinion, "that bones act soonest for being boiled or stewed, as the fibres of the turnips or any other plant take hold of them sooner after the oleaginous part, which impedes their decomposition, is taken from them either by boiling or stewing."

Mr. Broughton however states, that he has found bones in their raw state much superior in point of their duration to the manufactured bones. An observation of Mr. Horncastle's may lead to the explanation of this seeming contradiction. "My opinion is, that bones are not a manure until they have undergone some degree of fermentation, after which they will more readily decompose. It is known that a strong fermentation takes place when boiled by the bone collectors in London. After being in a heap they become extremely offensive; and when they obtain this bad smell, I consider they are in a state to break up for manure. They are also liable to heat when in a great body on board ship; but as I know nothing of chemistry I hope the subject will be considered by those who are more capable. I judge from experiments made by me in the years 1794, 1796, and 1814." As these experiments tend to throw light upon this difficult subject, we subjoin them.

"The first bones which I used (in 1794) were from the dog-kennels: I had them broken at Old Coats mill, and spread them on a fresh ploughed clover lay the same day. On the following day wheat was sown, and the bones and wheat harrowed in together. The quantity was about eighty bushels on one acre: the crop was bad, and I never could observe any good effect from these bones afterwards. This was upon high sand land. In 1796 I sent another wagon load of kennel bones to be broken; they were spread the following day upon a piece of fallow upon Blyth Forest, at the rate of about eighty bushels per acre, and were ploughed in by a very thin furrow on which turnip seed was sown: there was a full plant, but the turnips were small, and did not appear to derive much advantage from the bones, neither did the succeeding crops. I shall here observe, that after these trials of bones for manure I thought they were not adapted to sandy soils; but afterwards, by observing others use them with great success, I thought that my failure might arise from having used the bones immediately after they were broken, and consequently before any heat from fermentation had taken place. As a further experiment, in 1814, I again sent some bones from the dog-kennels to be broken, and then laid them on a heap which I covered with earth; they remained in that state about a month, and were then spread for turnips. The land was ridged with a double mould plough, and turnip seed drilled in the ridges. The good effect of these bones was to be seen on every yard on which they were spread, being the largest and best turnips in the field, although the other part was manured from the farm-yard where a considerable quantity of oil cake had been consumed."

With the principle stated by Mr. Horncastle corresponds the experience of the Rev. C. Cator. He states, in the use of bones, especially of the larger sort, those that appear upon the surface of the summer seeds should be "gathered off, and either broken again or mixed with earth, scrapings of the road, &c. wherein they will undergo another fermentation, and be quite as beneficial as any other bones. I had an extraordinary proof of their efficacy, so collected and mixed with road scrapings, in the same field in which the greater part was heavily manured with good fold yard manure; and though the whole field was a good crop, that with the compost of bones, &c. might be discovered to a single row for their superiority. * *

The principle thus developed naturally leads us to another of great importance, which has been elicited by the practice of intelligent farmers; and, like all principles developed by practice, the most certain and satisfactory, from its having proceeded from no theory previously formed. It is the accurate observation of facts which leads to every practical improvement, and a classification of facts proves the one principle which pervades them. This principle is the superiority of a compost of bones and manure, or other substances, over bones used singly. The effects of such a compost are stated by thirteen of our correspondents, who present them as their own individual conclusions, and a course into which they have individually been led by experience, without having had as far as appears any communication with each other: such a coincidence is too regular and marked to allow us to attribute it to any accidental circumstance, and the force of the concurrent testimony is so great as to leave no reasonable place for doubt. * * *

It may be matter of inquiry and deduction from the statements previously made, to trace the benefit arising from compost to its source. Mr. Birks states from his own observation, that on mixing the ashes from house fires with the bone compost, great heat is occasioned: this heat may be supposed to be the heat of fermentation, and more especially as from Mr. Micklethwait's, Mr. Cator's, and the several other statements, it is apparent that the mixing bones with soil or other manure rapidly promotes fermentation. If this be the case upon the principle before alluded to, the bones are by fermentation much sooner serviceable, and the other substances mixed with the bones may equally be benefitted by it.

Another principle of great value is stated by Mr. R. Littlewood: "If it be true that the component parts of the earth are adapted for the growth of particular kinds of vegetables and grain, what can be so fit and proper to bring those parts into action as a mixed tillage? And it is also quite clear, that the system of cultivating tillage land must be often changed in the cropping, in the grass, and in the manure also." In this principle of the propriety of changing manures, ten others fully agree, and this opinion fully strengthens the former one of the superiority of bone compost.

After having thus gone through the detail, it may be well to subjoin a brief summary of the deductions we draw from them, as an assistance in their practical application. It appears then,

On dry sands, limestone, chalk, light loams, and peat, bones are a very highly valuable manure.

They may be laid on grass with great good effect.

On arable lands they may be laid on fallow for turnips, or used for any of the subsequent crops.

That the best method of using them when broadcast, is previously to mix them up with earth, dung, or other manure, and let them lie to ferment.

That if used alone, they may either be drilled with the seed or sown broadcast.

That bones which have undergone the process of fermentation, are decidedly superior to those which have not done so.

That the quantity should be about twenty-five bushels of dust, or forty bushels of large, increasing the quantity if the land be impoverished.

That upon clays and heavy loams, it does not yet appear that bones will answer.

With respect to price, it is not important to note any particulars beyond the calculation of the expense of a dressing of bones compared with farm-yard dung. Twenty-five bushels of dust at the present price of 2*s.*, would amount to £2 10*s.* Forty bushels of large bones at 1*s.* 10*d.* would amount to £3 13*s.* 4*d.*, and these are shown to be equal to an ordinary dressing of eight or ten loads of fold manure, which at 10*s.* would amount to 4 or £5. But the most material saving will be in the carriage, and in the difference of expense between drilling bones with the seed and dressing the land over with dung in the usual manner. A still greater advantage accrues from their use in the saving of time, which may enable a farmer to put in the turnip seed sooner than where there is so much carting to perform.

ORIGINAL COMMUNICATIONS.

Retrospective Criticism on the First Series of the New-York Farmer. By the EDITOR.—Volume 1st, No. 1, 1828.

It is our intention to embody in the present series, the substance of the most valuable information, particularly the original communications, contained in the back volumes—accompanied with occasional remarks. We hope to do it in such a manner as to be of service to those who have the back volumes, as well as to those who commenced with the new series.

The first article we would notice is the following paragraph from our own introductory remarks:

"Our expectations from public patronage are moderate. The fields where we expect to gather our fruit do indeed lie before us in pleasing and delightful prospect; yet there intervene heaths and obstructions of briars and thorns. Among these we shall cheerfully and perseveringly toil, in full anticipation of eventually gaining an easy and free access to the bowers of plenty." All we have now to remark, after five years of toil, is that 'plenty' is still in anticipation.

New-York Horticultural Society.—A sketch of the rise and progress of this association is given by Mr. W. Wilson, of New-York. It was organized by a few persons, principally gardeners, on the 30th of September, 1818. On the 28th of September, 1819, the first President, Thomas Storm, Esq. was elected. Mr. Wilson says, "during Mr. S.'s presidency, the society obtained very extensive and useful information respecting the actual state of horticulture in this country. Many facts were brought to light proving the natural tendency of our vegetable productions to deteriorate. Not only the means of preventing this deterioration, but of promoting their improvement, were pointed out and understood." It would have been well if these "facts" had been recorded on the minutes of the society for the benefit of succeeding generations. The next president was Martin Hoffman, Esq. During Mr. Hoffman's presidency the society gained much in popularity. It was incorporated March 22, 1822. The rules for the regulation of the society were drawn up by "Judge Van Ness, Dr. Hosack, John B. Murray, Esq. and others." On the resignation of Mr. Hoffman, Dr. Hosack was unanimously chosen.

Among the instances of the beneficial effects attending the society, was the increased attention given to the cultivation of the Cape Broccoli, and other valuable vegetables. As early as 1821, "many thousands" of fine heads were

sent to the Washington market by one of the members. Mr. W. says "the establishment of a botanical or horticultural garden would add much eclat to our name as a society, and could not fail, if properly managed, of being productive of much benefit to our improvement in botanical science and refinement in rural taste." We agree with Mr. Wilson, and believe the New-York Horticultural Society would have been, in usefulness and renown, second only to any in the world, had it, within the last six or eight years, been under the control of a Knight, a Dearborn, a Hericart de Thury, and their kindred spirits. Without meaning any reflections on any worthy and estimable citizens, facts, and a comparison with the sister society of Massachusetts, will support us in saying that the public have not yet derived that extent and permanency of benefit which might reasonably have been expected.

Foreign Plants.—A letter from James Telfair, Esq. from the Isle of France, among other plants sent to Dr. Hosack, mentions the Jollifia Africana, or Telfairia pedata, a cucurbitaceous plant "producing a melon-shaped fruit, three feet long." It is, we find, by reference to the Hortus Britannicus, a new plant, a new genus—introduced into England in 1825. There are mentioned, the "cotton plant of Seychelles, so remarkable for the length, whiteness, strength, and silkiness of its staple," "some young fish, which came to us from China, and which succeed perfectly in our ponds, producing very rapidly natural increase, fattening easily upon maize or bran, and being one of the most delicious fishes that is brought to our table here;" seeds of a new raspberry from Ceylon, "growing most luxuriantly on our coldest hills"; and the "seed of our rose-leaved raspberry, from the Molucca Islands—it is propagated by the birds in all our forests, is much larger than the European." We do not know what attention has been given to the increase of the above.

The Vine.—A communication from Wm. Wilson, Esq. of Clermont, New-York, to the New-York Horticultural Society, details at length his culture of the grape. "For the first six or seven years they were cultivated in the usual way, cut down to three or four feet, and supported by stakes and laths. They bore fruit, but in two out of three years they were blasted and mildewed, good for nothing." He resolved to imitate nature. "At the time of trimming," says he, "I left the vines their whole length, 10 or 12 feet or more; cutting away every side shoot, and leaving the vines as clear of shoots or spurs as possible." Supported by high stakes they produced plenty of fruit, and not "one bunch blasted or mildewed."

As soon as the grapes are all gathered, the vines are taken down, stretched out their whole length, trimmed as clean as possible, left to lie on the ground two or three weeks, and then covered by putting the soil on them. In April, as soon as the weather will permit, they are uncovered and left lying on the ground ten or twelve days. Mr. Wilson had had, in 1821, twenty years of experience in cultivating the grape, and the last ten of which with success.

Strawberry.—A letter from the Rev. Dr. Miller, of Princeton, N. Jersey, to the New-York Horticultural Society, gives an account of the method of burning the surface of the strawberry beds in the spring. This is done by spreading over the bed dry wheat straw, a layer about an inch thick, and setting fire to it in a dry day when the wind is light. This is done when the frost is fully out of the ground. By burning the beds at successive periods, there will be a corresponding succession of fruit.

Mr. Wm. Curr, of New-York, gives his method of cultivating this plant—covering the beds in September with well rotted manure, five inches thick, digging it in, putting the plants at 16 inches apart, covering the bed in November with a thin coat of litter, and burning it in the spring, in successive portions, as directed by Dr. Miller. That burnt with leaves was the most luxuriant in growth, and the fruit about the same. Mr. C. approves of burning. In selecting strawberry vines, he disapproves of taking them promiscuously from old beds allowed to grow over-thick with runners. Those runners formed first by the original plants, are to be preferred "to those produced from trailing stalks, at a distance from the fruit-bearing plants."

The Season.—In 1828, at the middle of January, there was no frost in the ground at New-York. "The weeds, grapes, herbs, flowers, and esculent vegetables are growing; and boats are passing between this city and Albany, without seeing ice in the river."

The Peach.—The late Andrew Parmentier, of Brooklyn, recommends fish, and also bruised sorrell, to be put around the tree, to prevent the injury from worms. Dirt heaped up a few inches has the same effect. He thinks the yellows is caused by improper transplanting.

Cattle Yards.—J. Buel, Esq. recommends the cattle yard to be on the south side of and adjoining the barn; suitable sheds and close fences on the east and west sides, excavated towards the centre to the depth of two to five feet, to receive readily all the liquid of the yard. An objection to this plan of Judge Buel's is, we should suppose, the great accumulation of water in heavy and long storms, unless a drain is made to carry off the excess of water. We should think the slope should be towards a corner of the yard, least in the way, and a *pump* put in the hole or well for the purpose of saving all the liquid manure, and sprinkling it on grass and other crops.

Annual Report of the New-York Horticultural Society shows evidence of persevering effort. The New-Zealand spinage, Tetragonia expansa, was presented by Mr. M. Floy, the seeds of which were received from Paris by Dr. Hosack. Several new varieties of tobacco, and some of them of very superior quality, have been received and cultivated for the society by Dr. Buxton.

New-Zealand Spinage.—Mr. Floy sent to the society fifty papers of the seed. He recommends it as very hardy, to be sown in April, on a bed of good rich mould, two seeds in a hill, and each hill at the distance of two to three feet. "The leaves will be fit to gather for use during the whole summer, and until very late in the fall. It stands dry hot weather." He considers it in every respect superior to the common spinage. Its culture has not increased among our vegetable gardeners.

Camellia.—Mr. T. Hogg, after enumerating some of the most approved varieties, says, "the most suitable mould and soil for the health and growth of this plant is a free or open black bog earth, well mixed with about one third of yellow loam. Every kind of manure is poison to this plant. Shade in the summer, and frequent watering over the leaves from the rose of the watering pot, are essential to its growth. The single camellia is easily propagated, by cuttings of well ripened wood put in pots filled with a mixture of bog earth and white sand. They ought to be kept well watered, and placed in a shady situation."

Apricot of Mulch.—This was introduced into the United States by the late Mr. Parmentier. Ripens its fruit in July. Mr. P. considers it an excellent variety.

Grapes preserved by dipping the stems in tar is disapproved of, if they are packed away in a close vessel. The grapes partake of the smell of the tar.

Red Monthly Strawberry—a variety of the Fragaria vesca sempiflorens was introduced by Mr. Parmentier. It makes no runners.

High Wages.—Many laboring persons are great advocates for supporting high wages. In doing so they should remember that the tendency of high wages is to set the employer to devising some method to get along without any or with less assistance, or to either postpone or abandon contemplated improvements. Hired persons in general are strongly in favor of high wages, and opposed to the introduction of labor-saving machinery. In advocating the former they give encouragement to the latter.

Progress of Agriculture in Great Britain.—Only a few centuries ago most of the lands of Great Britain lay in an uninclosed state, and a very considerable portion in commons. Now there is afforded a striking and pleasing contrast. What may we not expect even in the United States, in the course of fifty years.

Property and Civilization.—Little or no progress is made in civilzation, until property in land is established and rendered secure. A savage has but slight incitements to any further industry than is sufficient to supply his present urgent wants. Laboring people in civilized countries, as long as they are destitute of property, are not as industrious nor as desirous of improving themselves as those who have laid up something. Farmers experience much inconvenience from the want of industrious and persevering laborers. To remedy this evil in a measure, let conditional bargains be made, by which a portion of their earnings shall be invested.

Starching.—Some of our female readers would, we presume, like to have us record some of the facts which we now and then pick up in conversation. If they wish to make a brother or a son look a little smart on some particular occasion, they must, after having boiled the starch, and while yet hot, stir a little tallow in with it, or, what is better, a small bit of sperm candle. The linen should be pretty wet when ironed, and the iron hot. Treated in this manner, starched apparel looks much better and keeps clean longer.

Suggestions relative to Farmers' Work for February. By the EDITOR.

Supposing the farmer to have, agreeably to our suggestions of last month, the general plan of his operations well digested and clearly marked out, it will now be important to give his attention to the particulars.

Zeal and Enthusiasm.—The first requisite, after having matured a system of management with great judgment and caution, is to enter upon its execution with a zeal bordering on enthusiasm. We see what zeal can accomplish in politics, religion, science, literature, and other matters. In farming its power is equally potent.

Perseverance.—Next to zeal, untiring perseverance is indispensable in accomplishing the objects of the farmer. The changes which he can produce on his farm require time—some of them successive series of years. He consequently should consider perseverance an important trait of his character.

Manure.—No attention should be spared in preserving from waste all the manure made on the premises. If the stable have inclined floors to carry off the urine, there should be a drain to convey it into a cistern, in some part of the yard where it will not be lost in percolating through a porous bottom. If the farmer would calculate the quantity of water that falls on the surface of a barn yard, and then take a bushel of fresh horse droppings, weigh them, put them in a tub of water for a few days, strain the contents of the tub through a coarse cloth, apply fresh water and repeat the operation a few times, and dry them to about the same state as before, and then measure and weigh them, he may form some estimate of the loss he sustains by letting all the washings of his yard be wasted. It is not sufficient to imagine this experiment to be done, but he must actually perform it.

Cattle kept Warm.—It cannot be expected that live stock, particularly horses and cattle, will thrive well while they are exposed to the extremes, and to the violent storms of winter. Milch cows, kept in dry, comfortable stables, will continue to give milk longer, and in greater quantities. When exposed, their spirits and constitutions are affected—predisposing them to disease. Should there be a late spring, and fodder become scarce, the horses are less fit for the hard labor of spring, and the cows have feeble calves, and afford them but scanty nourishment. It is not well to keep them in apartments very close. They must have pure air, and be comfortable.

Sheep and Lambs.—During this month the sheep will begin to drop their lambs. The utmost care and attention are requisite to preserve the lambs. It is said more than half of the human race die before they are two years old; and it is very probable that half of the sheep in the United States die before they see two weeks. This mortality, in both cases, is probably owing to defects in the constitution, produced by inattention to the dictates and requirements of nature, rather than as the results of physical laws. On this subject we refer our readers to page 8 of our preceding number.

Eggs.—A farmer's wife, who has leisure in the winter, could not, perhaps, turn her attention to a more profitable object than eggs. By feeding fifty hens with the best food to make them lay, fifty cents a day might be realized during the months of January, February, and March—amounting to the sum of $45. Eggs in the winter command one and a half to two cents each, in the vicinity of large towns or cities.

Cutting Timber.—We often hear great diversity of opinion expressed among farmers on the proper time of cutting trees, both for fuel and for building timber. There certainly is a very great difference, for instance, in oak. Some will burn much better than others, and some are far more durable than others, even when cut in the same season. The study of phytology will undoubtedly throw some light on the subject. It is very clear that open woods or single trees, freely exposed to sun, air, and winds, are very different in respect to the solidity of the particles and to the quantity of moisture or sap contained in the sap vessels or pores, from those growing in moist soils, and so close as to exclude the sun. If to these circumstances we add that of the difference in soils producing either a quick or a slow growth, the time of felling timber will not be considered as the only cause affecting the qualities of wood.

Ploughing.—Should the frost be out of the ground any time during this month, it would be well to break up some kinds of soils—well for those who apprehend being hurried in their spring ploughing.

Grass Lands.—Many farmers turn their cattle into their meadows while the ground is soft. Scarcely any day in winter is meadow land in a state not be injured by their feet. When the ground is thawed to some depth, they make deep tracks, and when only on the surface to an inch or two, the injury is equally as great by the slipping and sliding of the cattle.

Clover Seed.—Those who omit to sow their clover with their wheat or rye in the fall, would do well to attend to it about the last of this month, when the ground is soft or covered with snow. If a sufficient quantity was not sown at the time of sowing the grain, the deficiency can be made up. Old meadows that have but little or no clover, may have some seeds sown, particularly if they are to be scarified, and to receive a top dressing of manure.

Draining.—There are some situations where it is less tedious to cut drains when the ground is frozen than in any other season of the year. Where there is but little or no water unfrozen, the digging, or rather caking, is not as difficult as one would apprehend.

Bees.—It would be well to inspect the hives, and supply any deficiency of food that may exist.

Farming Implements.—These should be examined, the necessary repairs made, and what may be wanting supplied.

Fattening Cattle.—A practical, scientific farmer informs us that cattle fed on clean, raw potatoes and good English hay, will fatten with great rapidity if they are kept comfortable and warm. The potatoes and dry hay reciprocally and alternately sharpen the appetite for each other.

Mental Improvements.—The winter evenings and other leisure time should be diligently employed in mental exercises, particularly relating to rural matters.

Importance of the Silk Culture—Aid from the General Government required. By A. W. To the Editor of the New-York Farmer.

The Chinese, knowing the great value of the silk manufacture, closely guarded the secret of its management by the most rigid penal enactments, by which means they were enabled for many centuries to keep the silk worm from spreading over the world, consequently monopolized the whole business, which was a source of much wealth to their empire.

Many fruitless attempts were made by crowned heads to obtain the worms, and to learn the mode of their management, but for a long time without success.

The prospect of great reward at length put a few eggs of the silk worm in possession of the Emperor Justinian. From this small beginning all the silk worms in Western Asia, Europe, and America, have been produced.—England, Holland, Germany, Russia, and Sweden, are fully aware of the importance of the silk business. France, more than any other nation in Europe, is deriving her power and greatest resources from the culture and manufacture of silk.

Our Treasury returns, for several years past, shew that the silk imported and consumed in the States is more in amount than the bread stuff exported. Silk may be successfully and advantageously cultivated in every state in the Union. Experiments have shown American silk to be superior in color and texture to the silk of any nation. Other agricultural labor will not be lessened by such culture. The condition of the poor will be much improved; the young and infirm will make good silk culturists.

The climate of England is too damp and cold to propagate the silk worm. America may yet reap great profit on raw silk as an article of export.

Jay made no mention of cotton as an article of American production, in his treaty with England, 1794. The present year's crop of cotton is worth about thirty millions of dollars. Many of our citizens, who about 38 years ago planted cotton seed, may be living witnesses of the fact, that cotton is the first staple in the states. A large portion of those who are now planting the mulberry seed, may live to see raw silk the second grand staple of our country. The state of Connecticut has taken the lead in the growth and manufacture of silk. Many of her citizens are entitled to great credit for their persevering and patriotic efforts.

Mansfield has been engaged more or less in the raising of silk ever since 1760, and the quantity gradually increasing. Windham and Tolland counties have produced for the last year raw silk sufficient to employ fifty-five looms, which would manufacture about 30,000 yards per year, say vesting and other broad goods.

Considerable quantities of silk goods have been produced by the enterprising perseverance of Mr. Rapp, of Economy, in Pennsylva-

nia. *Superior specimens of what might be accomplished by a judicious National fostering was exhibited last Winter at Washington, by the venerable and learned Mr. Duponceau.*—Many other parts of the Union have produced specimens of silk stuffs and sewing silk; the latter article is found the most profitable, yet in manufacturing this, a great drawback to profit is experienced from not systematically understanding the art of filature, or reeling the silk from the cocoon. In other countries, where sewing silk is manufactured, the tow of the silk is worked in; but we are obliged to make use of the best part of the fibre. Our sewing silk is stronger than the Italian, but in consequence of our defective reeling it is very wasteful, difficult to keep from tangling, &c. The finishing of piece goods suffers from the same cause.

It must be obvious that something is materially wrong in the silk operations of our people, or the manufacturing of it would ere this be entered into much more generally.

The culture of silk was attempted in Virginia a century and a half before cotton was brought into notice. The growth and manufacture of cotton has progressed with astonishing rapidity—the value of our cotton manufactories is immense.* It is now only 25 or 30 years since it was thought the ingenuity of our people would not be equal to manufacture as good and as cheap goods as the once celebrated India Baftas and Hummums. A very short period of experiment drove these very inferior trash from our shores. The bare mention of such fabrics being once in so general use in our country, causes almost as much risibility as the fact of importing building brick from Holland. Our cotton goods now find their way to the Indies; our bricks are equal to any in the world; and with a little national protection, we will soon cease importing silk, and have raw silk to spare for a profitable export.

Many of the states, by their public acts, have shown their very decided opinion of the immense importance of the culture of silk, as a great and commanding National object; yet still, this grand object lingers.

The chairman of our Congress committee on Agriculture, 1832, speaking of the manufacture of silk, remarks, "On an experiment untried in this country, and requiring considerable capital, a reliance on individual enterprise would be at least problematical; and it is not to be expected that the several states will ever be found to act in concert so as attain the result which a national operation is calculated to procure."

If the manufacture of silk should ever be undertaken upon an extensive scale in the United States, Congress must give us a National School, to teach the whole process of silk work, but more particularly the important art of filature.

The eight millions of dollars sent annually out of the country for silks, in its various forms, can be saved, and it is as well to begin now as wait another century. A. W.

Lansingburgh, Jan. 1, 1833.

* The home consumption of raw cotton has increased 600 per cent. within the last 16 years, while that of Great Britain has only increased 220 per cent. in 21 years.

Rotation of Crops and Food of Plants. By Agricola. To the Editor of the New-York Farmer and American Gardener's Magazine.

Sir,—The Rev. Samuel Deane, D. D. Vice President of Bowdoin College, and Fellow of the American Academy of Arts and Sciences, and author of the New-England Farmer, or Georgical Dictionary, &c. has given us a long article on the *Rotation of Crops*. Verily, I apprehend that Mr. Deane understood theology better than agriculture. The ignorance manifested on this subject appears to me inexcusable in one who sets himself up for a teacher. He would persuade us that we have only to change our crops in order to render our land perpetually fertile. The absurdity of this doctrine is too apparent to need refutation. Land once exhausted of vegetable food is utterly incapable, I believe, of producing any crop. Manures buried in the soil appear to be slowly resolved into carbonic acid gas; this is absorbed by the earth, and afforded little by little as the plants can receive, assimilate, and digest it.

This carbonic principle I take to be the true food of plants; and where it is wanting in the soil, it would be in vain to attempt to cultivate any crop whatever. All animal and vegetable matter appear to be principally composed of this carbonic principle, but when manure or a carcase is thrown on the top of the ground, it is absorbed by the sun, scattered by the winds, and its decomposition too rapid to allow the plants to receive, digest, and assimilate it: they can only take a limited quantity at a time. Hence we bury manures in the soil, that this food may be afforded slowly as the plants can use and assimilate it. This food is every where diffused in the atmosphere, but not in sufficient quantities to support plants in a vigorous state, unless we apply Plaster of Paris or some other substance to attract it, or bury manures in the earth to supply it in the neighborhood of the plant. Such are my views on this subject, and I remain yours, as ever, Agricola.

September 11, 1832.

Docks, Edifices, and Commerce of Liverpool. By B. P. To the Editor of the New-York Farmer.

Sir,—As Liverpool is generally the first landing place of Americans crossing the Atlantic for business or pleasure, perhaps some little notice of it will be interesting to your readers. The spacious docks into which ships are admitted on their arrival always excite the wonder of an American—showing in a most astonishing degree the power of science and art, in overcoming what would, but a few centuries since, have been considered insurmountable obstacles. They are of three kinds, the principal are the west docks, which chiefly receive the ships in the foreign trade which have large and heavy cargoes to receive and discharge. In these the ships are afloat at all times of the tide, the water being retained by the dock gates. The next one is the dry dock, or basins, as they are called, because they are left dry when the tide is out; these generally receive the vessels which are employed coastwise.—The others are the graving docks, which admit or exclude the water at pleasure, and in which the ships are laid dry for the purpose of repairs. Prince's Dock is where the American ships lie, and is exceeded in size by the Queen's Dock only. It was commenced in 1815, and completed in 1821. It is 500 yards long, and 106 broad, and covers an area, including its two locks, of 57,129 yards. It has gates, each of which is 42 feet wide and 34 deep, with locks at each end. The locks are constructed so as to admit vessels in and out at half tide. This dock is built of uncommon strength, and according to the most approved principles of naval architecture. It is inclosed by gates at convenient distances. At the north end is a dwelling house, with suitable offices for the Dock Master. The quays are spacious, on which are erected sheds to preserve merchandise from the effects of rainy weather, of which they have much at Liverpool. Spacious as the docks are, they are still considered as too limited for the increased commerce of the port.—As a sample of the increase of shipping and duties at Liverpool, I annex the following:

	Vessels entered.	Amount of Duties.
In 1760	1,245	£2,330 3 7
1800	5,746	24,379 13 6
1810	6,729	65,782 1 0
1820	7,276	117,962 14 6
1830	11,224	151,329 17 10

The population of Liverpool is estimated at about 165,000, showing an increase in 10 years of upwards of 46,000. The suburbs are very populous, and contain at least 40,000 inhabitants. Liverpool contains no valued remains of ancient barbarous, or classic architecture; no antique inscriptions in characters half obliterated by time; nor any of the more portable reliques which adorn the antiquarian cabinet, rendered sacred by the rust of ages. The attention is not arrested by sudden and frequent revolutions, nor the imagination seized with tales of

"Deeds heroic, sieges rais'd, or battles won."

Its history is the history of the silent but powerful operations of industry, and its topography stands an honorable monument of ardent activity, and well-directed enterprise.

The public structures devoted to religion in the town of Liverpool are numerous, and their size and the high style of elegance in which many of them are finished, render them superior to most in the kingdom. They are among the first objects that deserve the attention of the stranger. St. Nicholas, or the old church, is said to be the oldest ecclesiastical foundation in the town, and although it would be difficult to trace its primary history, a licence to bury in the cemetery attached was granted in 1361, by the Bishop of Litchfield, who then presided over this diocese. Its situation is near the docks. In the church-yard was formerly a statue of St. Nicholas, who in the papal calendar is made the tutelar deity of the mariner, to whom the sailors presented an offering on going to sea, to obtain from the saint a prosperous voyage and a safe return.

The interior of the church presents few venerable remains of ancient dignity, most of them having been displaced to make room for modern decorations. The font is of white marble, the cover or cap of which is a curious composition in the style of ancient crosses. An ancient manuscript thus describes one of the chantries: "The chantry of the high altar of the foundation of Henry, Duke of Lancaster, to celebrate therefore the souls of himself and his ancestors;" which is observed accordingly,

and the grant is forever. There are about 30 churches, and from 12 to 20 what are termed chapels, being of other denominations than those used by the established religion. The church of the school for the blind is well worthy of attention. The objects in erecting this beautiful church were, first, to accommodate the blind pupils with a place of divine worship near the school; the other, that the superior singing and music made by the pupils might attract those having a taste for music, and that would contribute to the funds for their support. One half of the pews are reserved for strangers, who I believe are universally gratified, and always contribute their mite for an object so deserving.

A very excellent specimen of stained glass may be seen in the altar window. The subject is the Ascension; the reflection of the light through it is exceedingly beautiful. The architect copied for the portico at the west end, the portico of the Temple of Jupiter Panhellenius, in the isle of Ægina, which is really a most beautiful design. B. P.

Directions for Forcing and Forwarding Vegetables. By THOMAS BRIDGEMAN, Seedsman, and Author of the "Young Gardener's Assistant." To the Editor of the New-York Farmer and American Gardener's Magazine.

MR. EDITOR:—It cannot be expected that the weather in the coming month, February, will be suitable for gardening operations in general; but it behoves those who may be desirous of procuring a tolerable share of the luxuries of the garden, to "work while it is called to-day," for there are many sorts of culinary vegetables which may be forwarded in the winter, that cannot be raised to advantage in extreme warm weather. The celebrated Mr. COBBETT very justly observes, that "Hot-beds, as things of real use, are more necessary in America than in England; because in the former country, the winter will not suffer to exist in the open air many plants which are wanted to start with the warm sun, and which plants the winter will suffer to exist in the open air in England. The American spring bears no resemblance to that of England, which comes on by degrees from the end of February to the beginning of June; while the American spring cannot be said to be of a fortnight's duration." It must appear evident to those who have duly considered the subject, that although a hot summer sun is beneficial to the maturing of some kind of garden products, it is unpropitious to the cultivation of some of the most valuable sorts of culinary vegetables. It should therefore be the object of those who may wish to become pre-eminent in the art of gardening, to use artificial means in the winter and early part of the spring in order to have such kinds of vegetables early in the season. Perhaps the most important business in the month of February is to collect plenty of heating materials;—in doing this, great care should be taken that the dung be fresh from the horses. Those who may live near extensive stables should engage it before hand, and order it to be kept secure from the weather. Well preparing the dung is of the utmost importance in forcing, and if it be not done before it is made into a bed, it cannot be done after, as it requires turning and managing to cause it to ferment freely and sweetly; and care should be taken that it do not become soddened with water.

The next consideration is to select a situation for the beds to be made on, which should be well protected by a close fence or wall, and not in any way connected with any building calculated to harbor rats, mice, moles, &c., which are very apt to take up their abode in warm dung, to the great injury and sometimes destruction of the beds. It is necessary that the foundation of the beds be drily situated, and not liable to be inundated with water from melted snow, &c. The frames and sashes should be got ready for the beds to be made in succession from the middle of February to the middle of March. My limits will not allow me to enter into particulars relative to the making of beds for all the different purposes: suffice it to state, that the depth of heating materials should be regulated by the season of the year at which the work is commenced, and also to the purposes for which the hot-bed are intended. Beds made for the purpose of raising half-hardy plants, or for procuring seedling plants late in the spring, may be made in the same manner as a common hot-bed, but where substantial heat is required to be kept up, the beds must be so contrived as to admit of linings as the heat decreases.

After the seeds are sown great precaution must be used, lest the plants should be injured by cold cutting winds, or destroyed by heat for want of air. To prevent the former accident, warm dung should be placed around the frames, and the sashes should be covered with mats and boards every night. If full air cannot be admitted in the day time, the sashes must be slidden down to let off the steam, at the same time the mats may be laid over the aperture, to prevent the cold air entering to the plants.

If the bottom heat in the bed be too violent, which is sometimes the case, means must be used to decrease it. This is generally effected by making holes in the bed with a stake sharpened at the end, or with a crow-bar, which holes should be filled up when the heat is sufficiently reduced. In lining hot-beds, if the heat is reduced in the body of the beds, holes may be carefully made to admit heat from the fresh linings, so as to enliven the heat of the bed.

A Fahrenheit Thermometer should be always at hand, at the time of forcing, to be used when necessary to regulate the heat in the beds; and the water that is used in cultivating plants in frames should be warmed to the temperature of the air, or according to the heat required for the various kinds of plants, which will be shown in the different articles as we proceed.

FORCING ASPARAGUS IN HOT-BEDS—Asparagus may be procured at an early season with comparatively little risk. A bed may be prepared in a deep hot-bed frame with well prepared dung, or a mixture of dung and leaves; the depth of heating materials may be about two feet, and a foot of old hot-bed dung, tan, or any light compost that will admit of the heat passing through it, should be laid on. Provide plants from two to four, or even six years old, trim their roots and place them in rows on the beds; when one row is laid, strew a little mould among the roots, then proceed in the same way with one row after another, keeping them on a level, as the surface of the bed at first lay, till you have finished planting them; then lay among the buds and roots some fine vegetable or other rich mould, working it in amongst them with your fingers, and cover the beds over about one inch thick, and above that lay three inches in depth of vegetable mould not very rotten, old tan, or any other light compost that will admit the water to run quickly through. If there be strong heat in the bed, slide down the sashes till it begins to decline. The temperature at night should never be under 50, and it may rise to 65 without injury; as the buds begin to appear, as much air must be daily admitted as the weather will permit. In two or three days after the buds are planted, the heat will begin to rise; the beds should then have a moderate supply of water applied from a watering pot, with the rose on; repeat such waterings every three or four days. By the time the buds have come up three inches above the surface, they are fit to gather for use, as they will then be six or seven inches in length. In gathering them, draw aside a little of the mould, slip down the finger and thumb, twist them off from the crown; this is a better method than to cut them—at least, it is less dangerous to the rising buds, which come up thick in succession. An ordinary sized frame calculated for three sashes will hold from three hundred to five hundred plants, according to the age and size, and will if properly managed yield a dish every day for about three weeks. On the above estimate, if a constant succession of Asparagus be required, it will be necessary to plant a bed every eighteen or twenty days, as it will be about six weeks from the time of planting before it is fit for use. Rhubarb and Sea Kale may be, and sometimes are, forced in the same manner as Asparagus.

FORWARDING BROAD BEANS, OR ENGLISH DWARFS; *vicia faba.*—As the several varieties of the English Broad Beans cannot be raised in perfection under a hot summer sun, they should be planted as early in the year as possible. Those intended for early crops are generally planted in England from October to April, but, as our winters are more severe, it is seldom that any can be planted in the open ground here before the middle of March; and some are apt to drive it off until the approach of warm weather, consequently the crops are poor and scanty. To obviate this difficulty, some of the best kinds should be planted in boxes, and placed in a moderate hot-bed in February, or early in March. If the plants thus raised be not nursed too tender, they may be transplanted into the open ground in the latter end of March: this will enable them to produce their fruit early in June. Or, if a heap of manure be spread thick on a piece of ground late in the autumn, it will keep the earth from freezing; and if said manure be removed in February, and a frame placed over, and protected from extreme cold, the seedlings may be raised therein. Those that may not choose to take this trouble, should plant some of each sort as soon as the frost is out of the ground. A strong clayey soil is the most suitable, but they often do well in moderately light low ground, provided it is well trodden, or rolled, after the beans are planted. It may be necessary here to observe, that these

beans will need a careful hoeing when about three or four inches high; and if some earth be drawn up to their stems, three or four times in the course of their growth, it will greatly refresh and strengthen them. When they are arrived at full bloom, and the lower pods begin to set, the tops may be broken off. If this be done at the proper time, it will greatly promote the swelling of the pods, as well as their early maturity, for having no advancing tops to nourish, the whole effort of the root will go to the support of the fruit.

Forcing Kidney Beans.—The most dwarfish kinds of Kidney Beans may be raised in hot-beds, but they require a substantial heat to mature them. The temperature within the frame should be kept up to 60, and may rise to 70 or 75 degrees, provided the steam is let off. In order to insure sufficient heat to bring them into a bearing state, the plants may be first raised in small pots plunged into a hot bed; or a small bed may be prepared, earthed over with light rich compost six inches deep, and the beans planted therein, and covered one inch. The second hot-bed should be earthed over to the depth of eight or nine inches, and the beans transplanted as soon as they are two or three inches high, in cross rows, twelve or fifteen inches apart by three or four inches in the rows, or in clumps a foot apart. When the season is so far advanced that one bed, with the help of linings, will bring the plants well into fruit, the seed may be planted at once to remain for podding; or if the gardener should choose to mature his crop in the open ground, he may raise his plants in boxes or pots in the month of April, and plant them out in a warm border early in May. Beans raised in hot-beds will require considerable attention: cover the glasses every night with mats and boards, admit fresh air every mild day, give occasional gentle waterings, and earth them up carefully as they progress in growth, to strengthen them.

Forwarding Early Cabbage, and other Plants.—It often happens that cabbage plants raised in the fall perish in the course of the winter, and of those which survive, many will run to seed on the approach of warm weather: it is, therefore, safest to commence raising plants in the spring. Those who may wish to have good strong hardy plants, should secure a piece of ground from the winter frost by a heap of fresh stable dung; or by putting down their frames before the approach of severe weather, and keeping them covered until the latter end of January, or early in February, at which time the seeds may be sown. The plants thus raised will be far better than those raised in the fall, as they will not run to seed; and they will be more hardy than those raised in hot-beds. The Gardeners about New-York sow their seed on hot-beds, covered with glass sashes, the last week in February or early in March: the plants will be fit to transplant about the middle of April, and should be set out in good ground, from sixteen inches to two feet apart, according to the size and kind. These, by being hoed often, will produce good cabbages in June.

Lettuce plants may be raised in the same manner, but they are much hardier if raised in cold beds. Capsicum, Egg Plant, and Tomatoe seeds should be sown in hot-beds the latter end of February, or early in March, to produce early plants for transplanting as the summer approaches.

Forwarding Cauliflower.—Those who may wish to secure a good supply of Early Cauliflower, should take great care of their plants through the winter: these should be transplanted into good ground in the month of March, and be protected by hand glasses. This would insure their heading before the approach of *extreme warm weather*, which is very injurious to Cauliflower. The fall plants are generally allowed to succeed best, but good Cauliflowers are sometimes raised from seed sown in a hot-bed towards the end of January, or early in February. When the plants thus raised are three or four inches high, they must be pricked out three or four inches apart into another bed, and by the month of April they will be fit to transplant into the open ground. These plants, if well managed, will succeed very well, and those that do not flower by June may make good heads in fall.

Having directed the attention of your readers to those articles which are of primary importance, I shall reserve the remainder for my next.

I remain, sir, yours, most respectfully,

T. Bridgeman.

Bowery Road, January 21, 1833.

A Proposition—Pomological Society. By J. B. To the Editor of the New-York Farmer and American Gardener's Magazine.

I beg leave to propose, through the Farmer, Mr. Editor, the formation, in the Valley of the Hudson, of a Pomological Association, for the purpose of acquiring and disseminating information in regard to the culture and improvement of fruit. The association may consist of classes, embracing a county, or contiguous counties, which may meet at intervals during the fruit season, in the respective districts, at the dwellings of the members alternately—the members to bring with them, or to send to these meetings, specimens of choice or rare fruits which their grounds may afford—and to communicate any useful information they may possess in regard to this branch of culture. An annual meeting of the association would serve to concentrate this information from all the classes, when it might be collated and published, if deemed advisable. I would have neither premiums nor contributions, otherwise than the latter might be found necessary to defray incidental expenses. Numbers would be no object. Three in a county, or thirty in the whole, would perhaps effect more good than ten times these numbers.

We have probably more good varieties of indigenous apples than any other country, many of which are not known beyond the neighborhood where they first grew; and very little has been done to compare and ascertain the relative merits of different varieties, for the kitchen, the table and the press—distinct qualities seldom combined in the same fruits. The Pomologists of Europe have produced recently many new varieties of fruit, particularly of the pear, highly worthy of trial in our state. We are yet to learn how well they are adapted to our climate, and which are most deserving of culture. The culture of the grape, too, is becoming a subject of national interest, as a material for wine, and as a healthful and delicious fruit for the table. Our information as to its culture, the soils to which the varieties are adapted, and as to the varieties best suited to our climate, is yet very crude and imperfect. The experience and observation of our pomologists, if concentrated, arranged and published, would afford invaluable information upon these subjects. And perhaps, there is no portion of our country in which the culture of fruit may be turned to so certain profit as in the valley of the Hudson.

The pleasures of social intercourse, the opportunities of comparing fruits, the facilities of obtaining the choice varieties, and the information essential to their successful culture, and, above all, the high gratification which a benevolent mind ever feels in adding to the comforts and happiness of society, would, methinks, be an ample inducement for gentlemen of leisure and taste to become members of such an association.

To test the feasibility of the plan, and to bring it into active operation, if feasible, in the shortest time, I further propose, that as soon as thirty gentlemen shall signify their willingness to join such an association, by letter, to the Editor of the New-York Farmer, that he call a meeting, in order to organize and put it in operation. And I give him my name as one of the thirty, with a pledge, that a respectable class shall not be wanting for the county of Albany. In the mean time I solicit the views of Pomologists upon this, as I deem, interesting subject.

J. B.

Albany, Jan. 16, 1833.

Ginger for Heaves in Horses. By T. C. To the Editor of the New-York Farmer and American Gardener's Magazine.

As Farriery is embraced in this work, I may add, that my old horse, who is now in his 20th year, has been cured of the disease called "Heaves," by the use of ground ginger, a remedy recommended to me for the purpose. A table-spoonful was given to him daily, for several weeks, mixed in his mess of indian meal and cut straw. The horse had been troubled with wheezing and a hard cough for a year or two, and had lost flesh so much that he seemed to have nearly finished his term of service. Since the use of the powdered ginger he has become quite fat, and appears to be years younger and in good spirits. T. C.

Level Roads.—Agricultural writers say that a road perfectly level is not always the best for the horses. Slight and short alternations of rising and falling in the road are serviceable to the horses, provided the drivers are skilful. By these variations the lungs and muscles of the horses are relieved. This is explained on the principle that constant exercise of any of the muscular powers tends to exhaust. Consequently, on a road perfectly level, the same set of muscles are unremittedly exercised; but if there are some descents and ascents, these are either entirely or partially relieved and others brought into action.

Food for Cattle.—Cut straw boiled with potatoes and carrots into a jelly is used in Germany, for oxen and other cattle. Their oxen fed on this food are said to be remarkably fine.

Abridged Translations from the "Annales de l'Institute Royal Horticole" of Fromont.—By the EDITOR.

The first article of interest which we find in the June number of this periodical is on the propagation of good kinds of fruit trees by seeds, from the pen of the Count de Murinais. He observes that it is generally thought a graft produces a fruit exactly equal to that of the tree from which it is taken. Experience proves that a superior variety of peach, grafted upon an almond, readily produces a fruit having the taste and perfect resemblance of that of the tree from which the graft was taken. The seed of this, however, will produce an imperfect or inferior fruit. The first sowing of the seed gives you a fruit, the pulp of which is, indeed, more fleshy than that of the almond, but green, hard, and harsh. In grafting this same subject, you obtain a fruit of increased size, with some indications of color, but still uneatable. By grafting this last with the same kind of peach, and sowing the seed, you obtain a fruit in which the qualities of the peach predominate. By continuing the experiment, the author concludes that a fruit could be obtained perfectly resembling the original. At Auch, continues the Count, they obtain fruit of the Bon Chretien without seeds, and well known in commerce or at the places of sale. It degenerates immediately on being grafted; and can be continued unchanged only by propagating by layers. The more they are multiplied by grafts the more the seeds appear. The Count says he has received fruit so completely full that it was not possible to distinguish the least trace of the cells, much less of seeds.

If the graft thus modifies or affects the seed, what ought we to think, continues the writer, concerning the seeds of trees that have not been multiplied by ages except by grafts, sometimes on one, and sometimes on another kind. The peach grafted on a plum does not produce the same seeds or pits that one does grafted on an almond or a peach. Thus, in rearing from seed, we frequently attribute to fecundation those effects which are the result of mingling the different juices, similar to crossing the breeds of animals. Owing to the great length of time required to try the experiment on fruit trees, he recommends the substitution of herbaceous plants.

The next article of interest to American readers is a very complimentary notice, by the Chevalier Soulange Bodin, of the address of Gen. Wm. H. Harrison before the Hamilton County Agricultural Society, of Ohio. The part relative to the useful properties of the catalpa tree is translated and copied.

A short paragraph, from the Transactions of the Horticultural Society of Berlin, recommends the use of oxalic acid to increase the germinating power of old seeds. They are put in a bottle of this acid, and remain until they begin to germinate, which is in twenty-four to forty-eight hours, and are then sowed in the usual manner. Another way is to envelope them in a piece of woolen cloth moistened with the acid.

In the July and August numbers we find nothing which we deem important to transfer to our columns. In them is an interesting analysis of the recent work of the distinguished M. Candolle.

In the September number we find enumerated among the good qualities of the new Chinese mulberry, Morus Multicaulis, that in Lombardy its rapid increase has prevented the useful products from being injured or affected by the humid air of the low and cold grounds where it is planted.

From an article in this number we should judge that the subject of boiled food for domestic herbivorous animals elicited some discussion in France. Against the use of boiled food it is contended that the ruminating organs are left unexercised, and that sufficient saliva is not incorporated with the food unless the animals ruminate. On the other hand, Chaussier considers the agency of the saliva as entirely imaginary, and Bordeu has demonstrated that the action of mastication upon the salivary glands is altogether of no force, and that the extrication of the saliva is independent of the operation of the jaws. In fine, rumination is considered a function more mechanical than vital.

Suggestions relative to Gardeners' Work for February. By the EDITOR.

Next to capital or sufficiency of means, time is of the greatest importance to Gardeners. The former enables them to command the aid of others, and the latter to dispense with it. They, therefore, who are conscious of some deficiency of money to carry on their operations to the full extent they could wish, must endeavor to lay such plans, and make such timely preparations, that they can command more time for their principal operations than their neighbors. This is done by making all those previous arrangements and provisions which will facilitate labor and render it most efficient. In this way some gardeners will conduct their business under much less expense than others.

Pruning.—It is quite important that the gardeners examine *all* their trees, both fruit and ornamental, and give them the requisite slight pruning. This should be done, if possible, the first week in the present month. The rules which Judge Buel gives, (New-York Farmer, Vol. 4th, page 3d,) are, 1st, Begin to prune the tree when it is young; 2d, cut close and smooth to the bole of the limb; 3d, cut, when small, the branches which are likely to interfere, or become useless, and which, if suffered to remain, will require to be removed at a more advanced period of growth; 4th, do not trim to excess—let the branches occupy *at least* a third of the entire height of the tree; 5th, do not prune when the tree bleeds.

Manure.—Too much attention cannot be given to the accumulation and preservation of the different kinds of manure, in the early part of February. In the vicinity of cities it is very common for gardeners to cart their manure which they purchase only part of the way, and then drop it in a heap by the road side. In most instances this is poor economy: 1st, it requires more time than if carried on to the premises in the first place, and generally at a more busy and important period; 2d, the greater the distance it is ploughed or dug in, with less expedition, therefore greater the waste by evaporation; 3d, when left in the street it is not generally well covered with earth, and hence the principal and most nutritious part of the manure is lost by rains and evaporation; 4th, *all* the liquid is entirely lost. This loss is the most soluble, and the best part of the manure.

Cold Beds.—Several kinds of vegetables may be forwarded in beds in warm situations, surrounded and covered with boards, taking off the top boards in fair weather. Horse dung put around the edges both inside and outside will keep out much cold. Sashes for the top covering in addition to boards and straw, are desirable.

Hot Beds.—The place for these is the side of the house, barn, or fence, most protected from cold winds, and exposed to the sun. The ground should be dry. If there is danger that rats, mice, or moles, may be troublesome, the boards surrounding the beds should be from 4 to 10 inches below the surface, if the bed is on the level ground. It is better, however, to have the earth dug out to the depth of one to two feet. To do this with ease, the ground should have been kept from freezing. Put in a layer of fresh dung about twenty inches thick, let it begin to heat, cover it with six or eight inches of mould, put on the sashes, and in a few days stir up the surface of the mould and sow the seed. In addition to sashes, much care should be observed in keeping out the cold by placing manure around the frames, and by straw mats, &c. to cover the glass. Into this bed sow in drills, tomato, egg-plant, lettuce, and cabbage seeds.

Forcing.—Among the vegetables that may be forced during this month, in green-houses and hot-beds, are cucumbers, kidney beans, asparagus, peas and radishes. Potatoes may be planted in pots or boxes in a warm cellar, and when the roots have pretty well extended, place the balls of earth containing the roots in rich and warm borders.

Regulating the Heat.—The temperature should, as near as possible, be that which is necessary for free germination, from 45 to 70 degrees. Fresh air should be let in as often as the weather will permit. If the manure is too heating, a few holes should be made by thrusting down a sharp stick or a crow bar. Some of the above vegetables require different degrees of heat. Peas, for instance, do better with a heat increasing as they advance; kidney beans and asparagus succeed with a pretty high temperature.

Family Forcing.—In most dwellings, shops, and factories, there are rooms or parts of rooms that are kept sufficiently warm all winter for forcing vegetables. Near the oven, in the fireplace, behind the stove, the kitchen cupboard, or other similar places will answer. For mushrooms, take boxes three or four feet long, and one and a half to two feet deep, provide some spawn, which can be obtained at the seed stores, put in them alternate layers of dry horse droppings, spawn, and dry light soil, and tread them down pretty heavily: keep alternating until the boxes are full. Put the boxes in some warm place. For asparagus provide similar boxes. Half fill them with decayed tanner's bark, and leaf or similar mould. Take three years old roots, and pack them as thickly as possible, and fill up the boxes with bark and mould. Several vegetables may be raised in the same way, such as sea kale, rhubarb, buda-kale, angelica, and small salad.

Transplanting.—During this month, when the state of the ground will permit, all kinds of trees may be taken and set out in their intended place, or put into the cellar.

Insects.—Should time permit, this is not an unfavorable month to scrape and clean fruit trees, to destroy insects.

Mulching.—It would be well to put leaves or other litter about the roots of trees, for the purpose of preventing those extremes of wet, dryness, and cold, which often take place in this and the succeeding month.

Cuttings.—These may be taken from roses, geraniums, and many other green-house plants, and put in a warm part of the house, or in a hot bed. Roses, in particular, will take well in January, as well as this, or the succeeding month. To prevent geranium cuttings from rotting, it is best to put in a considerable portion of sand with the garden soil.

Vegetable Physiology—Lindley's Lectures.—By B. To the Editor of the New-York Farmer and American Gardener's Magazine.

[Some of the articles under the signature of B. which appear in this Magazine, sometimes appear first in the Albany Argus, but are designed to be communicated equally to both publications.—Editor.]

I have been delighted, and withal much instructed, in perusing the notice of a course of lectures on Botany, as connected with Horticulture, recently delivered by Professor Lindley, before the London Horticultural Society. I have seen nothing better calculated to excite a taste for this delightful science, or to render it subservient to the wants of man. I hope soon to see the entire series advertised by our enterprising booksellers. There are some facts laid down by the Professor, in the analogy which he draws between the blood of animals and the sap of plants, that may be new, and I presume not uninteresting, to a portion of your readers, and which I take the liberty to send you, with some remarks, for publication.

The necessity of alternating crops in husbandry has been imputed to a power in plants of electing from the soil the peculiar food adapted to their wants; and it has been supposed, that as one crop ordinarily exhausted the specific food of its species, a succession could not follow without deterioration, or a fresh supply to the soil of the needful pabulum. But the Professor says, that plants absorb aqueous particles indiscriminately; "that the moisture absorbed by the spongioles having ascended to the leaves, and been elaborated there into sap, returns, depositing by the way all the nutritious particles it has acquired; and at last throws off the residuum, in the shape of a spongy excrescence, at the root. These excretions, consisting only of what the plant has rejected, are of course unfit for the support of other plants of a similar nature, and may be said (in relation to such) to poison the soil."

This goes to strengthen the argument in favor of alternating crops, in field as well as garden culture. It applies with particular force to the transplanting of trees; and indicates the propriety of removing all the soil from their roots, and even of washing them, instead of transplanting them with a ball of earth, as is often the case, particularly with evergreen. I have heard of the practice being successfully adopted, observing the precaution to prevent the drying of the fibres, so as to destroy their functions. But as evergreens have always a foliage to sustain, the ball of earth becomes in a measure necessary to preserve the spongioles (mouth) it contains, till new ones are formed, or those injured by the removal resume their functions.

The experiments employed to illustrate the deposit of vegetable excrementitious matter, served to show another remarkable analogy between animals and vegetables. "All poisons are either corrosive or narcotic; or, in other words, act either by over-stimulating or relaxing the system; and these different effects have been shown clearly, by various experiments, to be produced on plants. One branch of a common barberry was steeped in a solution of corrosive sublimate, and another in a decoction of opium, when, in a short time, the vessels of the one were found to have become turgid, and of the other relaxed: the natural irritability of the plant being, in both cases, destroyed." To this susceptibility in plants to the deleterious effects of poisons, I have no doubt we shall be able to trace the new maladies which injure our fruit trees. I consider that the disease which has destroyed many of our plum trees has been proved to originate with an insect, which punctures the branches, and injects a subtle corrosive poison into the sap vessels. The precaution, when it has been adopted, of cutting off and burning the affected parts as soon as they are discovered, and of thereby destroying the germ of the insect, has had a happy effect in diminishing the evil.

While employed in these remarks, I have met with the observations of M. Macaire, inserted in the French Journal of Science and Arts, upon this branch of physiology, which coincide with those above quoted from Professor Lindley. "A certain portion of the juices," says M. Macaire, "which are absorbed by the roots of plants, are, after the salutiferous portions have been extracted by the vessels of the plant, again thrown out by exudation, from the roots, and deposited in the soil. It is probable the existence of this exuded matter, which may be regarded, in some measure, as the excrement of the preceding crop of vegetables, that proves injurious to a succeeding vegetation. It has been compared to an attempt to feed vegetables upon their own excrements. The particles which have been deleterious to one tribe of plants cannot but prove deleterious to plants of the same kind, and probably to those of some other kinds, while they may furnish nutriment to another order of vegetables.

Admitting what these eminent physiologists seem to have demonstrated, that plants throw off by their roots whatever is deleterious to their health, the conclusion drawn from the fact does not seem rationally to follow—I mean, it does not result that the cause of the deterioration of the second is to be found in the deposits made in the soil by the first crop. Wheat, in particular, is found to deteriorate on ordinary soils, and on few will it bear repeating oftener than once in three or four years; yet there are soils which will bear cropping with this grain for many successive years without diminution of product. Such is particularly the case in the valleys of the Genesee and of the St. Lawrence. Here, upon their theory, must be an annual accumulation of poison, and yet the plant does not seem to be injured by it. This excrementitious or poisonous matter has, combined with aliment, once passed through the sap vessels of that plant without injury; and why not, combined with the aliment which is constantly preparing in the soil, may it not prove equally innoxious, the second year, to a like plant. I suspect it is not so much the presence of a poison, as the absence of food, which causes the falling off in the product. These gentlemen admit that, although plants cannot elect, in the soil, the food which is adapted to their wants, they can and do retain none other in their system. This is admitting that there is a *specific* food adapted to each species; and that what is aliment to one kind may prove a poison to another. Is it not rational then to conclude, that as a plant appropriates to itself all the salutiferous or alimentary particles which enter its sap vessels, the subsequent infertility to this kind of crop is owing to the soil being exhausted of its particular or specific food? The annual application of manures, containing this specific food, is generally successful in counteracting this sterility. The deep alluvial deposits of vegetables and animal matter, which have been accumulating for centuries, and to which I have alluded, seem to afford an inexhaustible supply of the specific pabulum of wheat, without any indications of the imaginary poisons. B.

December 8, 1832.

Agricultural Schools and Societies. By Orange County. To the editor of the New-York Farmer and American Gardener's Magazine.

I have read with intense interest the communications in your last number by B. on the important subject of agricultural schools. The views and positions taken by that writer cannot, in my estimation, fail to meet the approbation of every true American farmer who wishes to advance the happiness and prosperity of his country. The listnessness and apathy that have long hung about our agricultural population, it is happy to observe, are fast clearing away, and they are rapidly awaking to a sense of the important station they can and should hold in this free and enlightened country. It is but necessary to rouse the feelings of our yeomanry on this highly interesting subject, to have them enter upon it with the same zeal that characterizes their movements in other respects. Let them cast their eyes around them, and view the rapid strides in the arts, and the magnificent acquisitions that are daily making. Spread before them, as an example, the immense advantages that are daily resulting from the application of steam to locomotion, connecting the most distant corners of the earth. Let them reflect upon the brilliant discoveries of Davy, or the untiring zeal and result of a Linnæus, or Cuvier, and then ask them if, in the face of the thousands of improvements both to elevate the mind and render life agreeable, they can content themselves to plod on in the old way, "unknowing and unknown?" If, in a country where they should occupy a proud station, they can content themselves with the possession of the least possible degree of knowledge and information? That when a combination of science and agriculture, of theory and practice, would not be an imaginary but a real and durable benefit to themselves and their posterity,

they will willingly sneer at it, condemn it, and jealously guard against any infringements on the opinions and prejudices of their ancestors, merely because they are such? Can an *American* farmer answer these questions in the affirmative? No, he cannot—he will not. Let then the enlightened agriculturist of this "empire state" set the example. Let the farmers of New-York be the first to step forward and lay the foundation of a great system of instruction, that shall elevate them to their proper rank, and enable them to introduce improvements which shall be a benefit to themselves and a source of increased prosperity to their country.

It is hoped and expected that the State Agricultural Society will, at its next session, devise a liberal and efficient plan for a State Agricultural School, when it is earnestly hoped that the agricultural portion of the community will zealously step forward and put it in operation. To point out the advantages individually seems needless, after reading the lucid suggestions of "B." If any one can oppose it or offer any objections to such an institution, it will be a matter of much surprise to me. That it may succeed, and that our state and our farmers may have the honor and benefits of successfully introducing it, is the earnest hope of an inhabitant of

ORANGE COUNTY.

Subscription Gardens in the vicinity of large Cities. By LANSINGBURGH. For the New-York Farmer.

A plan for forming Subscription Gardens in the vicinity of large commercial towns was published in the June number, volume 5th, of the New-York Farmer. The interruption of business and all kinds of improvement, by the destructive pestilence that commenced raging about that period, was a prominent cause that the subject should rest for a time. This is a fit and proper season to renew the subject; and as many of the readers of the new series of the Farmer may not have noticed the plan proposed in the old one, I will repeat the design, with some of the observations, in the hope that gentlemen of taste and wealth would take the subject into consideration.

Horticultural societies have done much to improve the taste for the beauties of nature; but commercial men are so situated in the centre of large towns, that however desirous they may be to cultivate that taste, they are almost entirely prevented from doing so by nearly insurmountable obstacles. If they have a garden at all, it must necessarily be in some nook or corner in the outskirt of the town, where they have no other property but the garden; and the person who is generally employed at considerable expense to manage it, frequently occupies about twice as much time in doing the necessary work as he ought to do—and even then, it is often kept in very indifferent order. Indeed, the proprietors of such gardens generally know little how they should be managed, and are consequently more readily imposed on.

Subjoined is a plan for dividing twelve acres and a half of ground into fifty small gardens, each garden containing one fourth of an acre. This space would be sufficiently large to produce vegetables and common fruit, for small families. There would be no difficulty in establishing a garden of this kind near every large town (New-York might have two or more of them for the different classes of society); the size of the garden might entirely depend on the number of persons who wish for little gardens. In most large towns there are gas companies, water companies, &c. and we can see no reason why there should not be Garden Companies.

A good way to establish such a garden, we conceive, would be to have it consist of as many shares as there would be divisions in it; and should any subscriber wish to dispose of his allotment, he could readily do so either by private contract or public auction.

The whole garden should be well enclosed. The cross divisions would be better, planted with dwarf apples and bush fruit; they would in time form a good hedge, also produce considerable fruit. If, in the centre of the garden, about four acres, in addition to the little gardens, were devoted to the purpose of holding the most beautiful plants, it would greatly induce persons to become subscribers, for the purpose of having the pleasure of walking in the garden after the toil and anxieties of the day. Subscribers to this botanic garden might be admitted, who did not have a share in the little garden: this would greatly assist the funds for keeping it in proper order. Scholars might also be allowed to walk in the garden until a certain hour in the day, by paying a small yearly contribution. The expense of keeping in order a little garden would be according to the inclination of the individual possessing it, for each must have the entire control of his own compartment; but for the assistance of all who wished for information, it would be necessary to have a first rate gardener to give all the instructions required, as well as to have the entire management of the ornamental part, and be responsible for the laborers employed by the different subscribers properly attending to their duty: this would be very satisfactory to a proprietor, knowing that, although prevented from attending himself, his garden would be as well managed as the best private garden.

The annual expense of keeping the fourth of an acre in good order, according to the above plan, would be trifling, provided the labor was all hired: but many have what is called an odd man about their premises, who would, under the superintendance of a practical gardener, be able to do the greater portion of the work, and others would wish to attend in part to it themselves, and some, of course, would hire all.

One laborer could manage four of the gardens well, and there would be no difficulty for as many of the subscribers to join and have a man, to whom, if they did not wish to take the trouble of giving the necessary orders, the head gardener would properly direct him for them.

The peculiar advantages of this plan are very obvious. A person living in the centre of a town could as well have his table supplied with excellent fresh vegetables, with the pleasure of knowing they were the produce of his own garden. Besides having the pleasure of walking in the ornamental department with his family, whenever his leisure or inclination suited. The foregoing is principally a plan suggested by the Horticultural Register. The same arguments in favor of such gardens can be adduced in reference to this country, with as much justness as to Great Britain.

Many of our Yorkers, who are engaged in mercantile transactions, are abundantly able, and would esteem it a great pleasure, to defray all the expenses of keeping a garden of from one fourth of an acre to two acres, in the highest state of culture. But a majority of those citizens cannot each afford to devote the time and defray all the numerous expenses attending the support of a house and garden out of town, without encroaching too much on their plans and objects in trade. Indeed, most of our citizens who are moderately wealthy, and who have tried the experiment, find that they cannot individually accommodate their families with a summer residence out of town, and kept in a convenient and beautiful order, without foregoing altogether the society and enjoyments of a residence in town. Hence, the care, perplexity and expense, of supporting a country residence while conducting business in the city, are often found greater than the pleasure and convenience afforded; but on the proposed plan, a merchant can have the gratification of supplying his table with vegetables and fruit, of decorating his parlor with plants in flower throughout the year, of employing his leisure in occasional superintendance and culture, and of taking his family and friends to a garden, beautiful, varied, and grand, in proportion to the taste, wealth, and numbers of those who unite in the laudable undertaking.

New-York island would offer many very suitable places, as also Hoboken, for a garden on the co-partnership plan. On a long lease or judicious purchase, and the undertaking economically managed, an investment could be made that would yield a per centage.

LANSINGBURGH.

Hints and Suggestions to Farmers. By B. To the Editor of the New-York Farmer.

PRELIMINARY.—Now that the bustle of election, and the shouts of the victors, have somewhat subsided; our crops secured, and the bleak winds of December have driven the husbandman from his fields to his fireside; I propose, Mr. Editor, to devote an occasional evening to the entertainment, and I would fain hope to the improvement, of your agricultural readers, provided you are disposed to second my efforts by publishing what I may *chance* to write: For as yet I feel the wish, without being conscious of the ability, either to instruct or entertain them.

My essays shall never be tediously long. They may sometimes be practical, sometimes theoretical, and, perchance, sometimes political; but partaking neither of personal or party politics.

You have now my proposition, sir; and I shall consider you as according to it when you publish these preliminary remarks, and shall proceed without delay to fulfil my task. B.

December 12, 1832.

No. I.

The adapting Crops to the soil and market, are among the first considerations which present themselves to the discreet farmer. The same soil that will produce a profitable crop of one kind, may not repay the labor of cultivating another. The hills and mountains that make the richest pastures, may be illy adapted to the production of grain. And the same farm product that is profitable to the farmer in the vicinity of towns or navigable waters, may be wholly unprofitable in a district remote from them. In newly settled districts, where the opportunities of interchange and marketing are

precarious, it becomes in a measure necessary that the farmer should adapt his husbandry to the immediate wants of his family, and produce his own bread, meat and clothing. Like causes often render it necessary that he should also be his own mechanic—as carpenter, shoemaker, &c. Distance, bad roads, and the want of means, leave him no other alternative. But in old settled districts, where the facilities of intercourse and trade are abundant, considerations of economy suggest a wiser course—that the farmer should apply his labors to such objects as will ensure him the best profit.

If we look to our fields and woods, we shall see that the natural products vary in different soils; that many trees and plants which spring up spontaneously in clayey grounds, are not to be found in those which are sandy, and *vice versa;* that some are peculiar to wet and others to dry grounds; and yet that there is a constant tendency to alternate or change—new species of trees and plants taking the place of other species which have been felled or have died. This is not the result of chance; but it is in accordance with a law of nature, which has endued plants with different habits and wants, and provided in different soils the food best suited to those habits and wants respectively. It is analogous to what we see in animals—almost every class of which, as the ox, the dog, the hog, &c. has its peculiar food.—Those who would profit from the works of infinite wisdom, therefore, will do well to study the aptness of their soils for particular crops, and to select those for staple culture which promise the best reward.

Heavy and cold grounds are found to be most congenial to wheat, oats, timothy, peas, &c.; light and warm soils to corn, barley, rye, and turnips; moist grounds to potatoes and fibrous rooted grasses; dry grounds to clovers, luzern, turnips and other tap-rooted plants. Yet all these crops fail, or are comparatively worthless, on lands habitually wet. Hence it is of the first importance, in order to obtain good tillage crops, or the fine nutritious grasses, upon wet lands, first thoroughly to drain, and, if flat, to ridge them. The farmer who undertakes to raise all kinds of crops upon one kind of soil, misapplies his labor. He had better confine himself to those which make the best return, sell the surplus, and buy with a part of the proceeds that for which his neighbor's soil is better adapted than his own. If his land will yield per acre 25 bushels of wheat, and only 25 of corn, he had better raise more wheat and buy his corn; for his corn costs him double what his wheat crop does, and is, withal, but a little more than half as valuable. If it will not produce good barley, let him forego the culture of that grain, and if his situation is near market, he should raise more grain, vegetables, and fruit, and less stock.

The expense of transporting his surplus produce to market, is an important consideration to the farmer. A bushel of wheat is worth to the grower in Chenango less than to the grower in Albany, by the expense of its transportation to market, which may be two shillings, or twenty-five per cent. A bullock, on the contrary, may be as profitably fattened by a farmer in Otsego as one in Westchester, the expense of driving him from Otsego to New-York being counterbalanced by the enhanced value of his feed, and of the land which produces it, in Westchester. Upon the banks of the Hudson, a bushel of potatoes is worth from two to four shillings; while their value, for market, in the interior, is scarcely half this; because they will not bear distant transportation, and find a precarious market at home. While, again, the wool, cheese, butter, cattle, horses, hogs and sheep, from the hills of Delaware or Lewis, from the cheapness of conveyance or transportation of these articles, and the relative cheapness of lands, are able to compete successfully in the market, with like products from the counties of Dutchess and Orange.

From this view of the subject it would seem to result, as a general rule, that farmers contiguous to markets or navigable waters will best consult their interests, by confining their labors so far as regards their marketable products to tillage crops, hay and fruits; and that it would comport with the policy of those more remote, to rely upon cattle and sheep husbandry as the main source of wealth. These suggestions derive force from the wise provisions of Providence, in adapting the vallies to grain, and the hills and mountains to the subsistence of flocks and herds. B.

Sisal Hemp.—Under date of Nov. 13, 1832, from Port Sisal, Yucatan, Dr. Perrine says:

"I am at this moment engaged in making confirmatory experiments with the Agave Sisalana. It is even much better than I stated in my paper on the Sisal hemp, There is a field of 5000 plants at only 2 yards apart, within three hundred yards of this table, in a very flourishing condition, although planted in the dry sand of the sea-shore, within two hundred yards of the water, which it is asserted will give at least three pounds each, annually, and need but one cutting; but as it makes very little difference *when*, a large plantation will supply work for dressing every day in the year. Heretofore it has been thought that the plant would not do well at less than 15 to 30 miles from the ocean, but this experiment shows that it will bear the sea air; and although its growth may be much slower, yet it produces sufficiently to stimulate cultivation in the worst places. Calculate for yourself 1210 plants to the acre of sandy sea shore, giving 3 pounds of Sisal hemp every year, after the first three or four, or we will even say 5 years, for ever and ever. Farewell at present, as I must see the Indian scrape six leaves of *Cheloin*, to compare their fibres with that of six leaves of the *Saoqui*.

H. Perrine.

Sisal Hemp—Letter to the Honorable the Chairman of the Committee on Agriculture of the House of Representatives in Congress assembled at Washington City. By H. Perrine, United States Consul at Campeachy.

Sir,—As unavoidable events have detained the subscriber in the United States, he yesterday evening had an opportunity of reading the printed report of your committee on Tropical Plants, dated April 26, 1832, and headed Report No. 454. The letter of H. M. Brackenridge, appended to that Report, and dated Pensacola, Dec. 29, 1831, contains the motives for the present communication. Although the general contents of that letter are highly gratifying to the subscriber, yet it is his duty to point out errors wherever they appear to exist. The first mistake made by Judge Brackenridge consists in confounding the Pita with the Sosquil Henequen, or Sisal hemp. The extract of the subscriber's letter published in the Telegraph of January 17, shows that they differ more widely than common flax and common hemp. According to Eaton's Manual of Botany, 5th edition, 1829, there is in the United States but *one* species of the Genus of Plants to which the Sisal hemp belongs, viz. the Agave Virginica. In England, according to Sweet's Hortus Britannicus, 2d edition, 1830, *thirteen* species of Agave were introduced between the years 1640 and 1826. In Eaton's Manual, *five* species of *Yucca* are noticed all of which are indigenous to our Southern States. In Sweet's Hortus, *twenty-three* species are mentioned as introduced into England between the years 1596 and 1829. It is highly probable that Judge Brackenridge alludes to that species which is called the Yucca filamentosa, of which I have seen plants, both in this city and Newark, which have grown in the open air during many years, and have passed unhurt the severe cold of our last winter, and which I am sanguine in the belief may be cultivated in various parts of even our Northern States. Having sent several leaves, some of which are partially dressed, to the Hon. J. M. White, the committee are respectfully referred to him for these specimens of a member of the great family of plants, which includes both the Sisal hemp and the Pita, and the Phormium Tenax, or New-Zealand Flax. They all belong to the same artificial class and order of Linnæus, viz. Hexandria Monogynia; and although botanists have arranged them under different natural orders, they should be all grouped in at least a natural class, to be called the Liliaceous plants. The Phormium is placed under the Asphodeleæ; the Agaves, under Bromeliaceæ; and the Yuccas, under Tulipacea; yet as the *leaves of each*, when presented to an unlearned citizen, would be compared to the Lilly, the adjective to embrace all analogous plants has been adopted by the subscriber.

All liliaceous plants, whose fresh leaves yield valuable fibres, are included in his enterprize, and constitute the prominent objects of his ambition; and he trusts that every member of the committee will live to see the day when, in consequence of the general cultivation of these plants, the common hemp and common flax will be no longer desirable objects of American agriculture. Judge Brackenridge will probably recognize the plant which he describes by one of the common synonymes of the Yuccas, viz. Adam's needle, Eve's thread, bear's grass, and silk grass. The subscriber is highly delighted at the encouraging opinions expressed by the Judge of the probable results of its cultivation on a large scale. The Yuccas, however, are but dwarfs to giants when compared with the Agaves. Even the tree-like species, the Y. Gloria, has leaves of less than one third of the length of the leaves of the Pitas. The seeds of the Yucca filamentosa and of the Agave haratto are enclosed for comparison by the committee. I have the honor to be, sir, very respectfully, your obedient servant,

H. Perrine, U. S. Consul for Campeachy.

Tammany Hall, May 15, 1832.

The Matrimonial Garden. By T. BRIDGEMAN, Author of the "Young Gardener's Assistant, &c." To the Editor of the New-York Farmer and American Gardener's Magazine:

SIR,—From your having enlarged your periodical and entitled it a Magazine, I feel inclined to contribute my mite towards furnishing it with stores; and as your readers consist of persons of both sexes, in all the various stations of life, I shall occasionally go out of my accustomed track in search of variety, as being in my opinion suited to periodical works. Should you think the following in the least calculated to amuse or instruct your readers, its insertion will oblige yours, most respectfully,

T. BRIDGEMAN.

Bowery Road, Jan. 14, 1833.

THE MATRIMONIAL GARDEN.

Man is formed for social enjoyment, and if it be allowed that "it is not good for man to be alone," it is equally true that it is not good that woman should be alone; hence a union of interests indicates a union of persons for their mutual benefit. By this union a sort of seclusion from the rest of our species takes place; and as a garden is a retired apartment appropriated to culture and improvements, the married state may not be inaptly compared with it in many respects.

It is good and honorable for the human species prudently and cautiously to approach this delightful enclosure. Its entrance in general is extremely gay and glittering, being strewed with flowers of every hue and every fragrance calculated to charm the eye and please the taste; but they are not all so: and as there are many persons who may wish to enter this garden at some time or other, who are yet strangers to its various productions, their attention should be directed to the cultivation of those plants which are beneficial, and to the avoiding or rooting up of those which are injurious.

And first, let me caution adventurers in this garden not to dream of permanent happiness; if you should so dream, experience will soon make you wiser, as such happiness never existed but in visionary heads. If you are desirous that this garden should yield you all the bliss of which it is capable, you must take with you that excellent flower called GOOD HUMOR, which of all the flowers of nature is the most delicious and delicate; do not drop it or lose it, as many do soon after they enter the garden—it is a treasure that nothing can supply the loss of. When you get to the end of the first walk, which contains about thirty steps, commonly called "*the Honey Moon Path*," you will see the garden open into a vast variety of views, and it is necessary to caution you to avoid many productions in them which are noxious, nauseous, and even fatal in their nature and tendency, especially to the ignorant and unwary. There is a low, small plant, which may be seen in almost every path, called INDIFFERENCE. This, though not perceived in the entrance, you will always know where it grows, by a certain coldness in the air which surrounds it. Contrary to the nature of plants in general, this grows by cold and dies by warmth; whenever you perceive this change in the air, avoid the place as soon as you can. In the same path is often found that baneful flower called JEALOUSY, which I advise you never to look at, for it has the strange quality of smiting the eye that beholds it with a pain that is seldom or never got rid of. Jealousy is a deadly flower; it is the aconite of the garden, and has marred the happiness of thousands.

As you proceed you will meet with many little crooked paths. I advise you as a friend, never to go into them, for although at the entrance of each it is written in large letters, I, AM RIGHT, if you do enter, and get to the end of them, you will find the true name to be PERVERSENESS. These crooked paths occasion endless disputes, and as it is difficult to make the crooked straight, it is better to avoid them altogether, lest, as it sometimes happens, a total separation be the consequence, and you take different paths the rest of your lives. Near this spot you will meet with a rough sturdy plant called OBSTINACY, which bears a hard knotty fruit, that never digests, and of course must injure the constitution; it even becomes fatal when taken in large quantities. Turn from it; avoid it, as you would the plague.

Just opposite to this grows that lovely and lively shrub called COMPLIANCE, which, though not always pleasant to the palate, is very salutary, and leaves a sweetness in the mouth: it is a most excellent shrub, and produces the most delicious fruit. Never be without a very large sprig in your hand; it will often be wanted as you go along, for you cannot be happy without it in any part of the garden.

In one of the principal compartments stands a very important plant called ECONOMY: it is of a thriving quality; cultivate this fine plant with all your care; it adorns and enriches at the same time. Many overlook it—some despise it—and others think that they shall never want it; it is generally overlooked in the gaiety and levity with which people enter this place, but the want of it is generally paid for with bitter repentance. There are two other plants of the same species which are very closely connected, called INDUSTRY and FRUGALITY, and I must take leave to tell you that, unless both the male and the female partake largely of their branches, very little success can be expected; in this they must both unite. Take care that you provide yourself and partner with a supply of each as soon as possible after you enter the garden.

There are two or three paths which run much into one another, and deserve the closest attention of the softer sex; I mean REGULARITY, EXACTNESS, and NEATNESS. Do not think as some do, that when you have once got into the garden you may be neglectful of these paths. Remember that your companion will see your neglect, which will affect his eye, and may alienate his heart. Enter on these departments then as soon as you enter the garden, and when you are once fairly in, you are in for life; the danger is, that if you do not get into them at an early period you will not find them afterwards. Near these walks is to be found that modest plant called HUMILITY:

> It is the Violet, "doom'd to blush unseen,
> And shed its sweetness on the desert air."

It appears of little worth in itself, but when joined with other virtues, it adds a charm to life and spreads a fragrance around its wearer. Cultivate then, with all your care, this sweet little plant, and you will find it prevent the growth of all poisonous and noxious weeds.

Allow me also to drop a hint on the subject of *cultivation* as connected with *propagation*, as that most probably will be your employment in this garden sooner or later. Should you have the rearing of young plants, remember that they are frail in their nature, and liable to be destroyed by every blast, and will demand all your care and attention. Should you be witness to a blast on its dawning beauties, oh, how your fond heart will bleed with tenderness, affection, and sympathy! The young shoot will naturally twine around all the fibres of your frame. Should it live and thrive, spare no pains to "train it up in the way it should go." Weed it, water it, prune it; it will need all the cultivator's skill. Without this, many weeds and baneful plants will grow up with it, and blast your fondest hopes. Be ever mindful that this is a *trust* for which both parties are accountable. Without careful cultivation, what can you expect but the most luxuriant growth of unruly appetites, which, in time, will break forth in all manner of disgraceful irregularities! What, but that ANGER, like a prickly thorn, will arm the temper with an untractable moroseness! That PEEVISHNESS, like a stinging nettle, will render the conversation irksome and forbidding! That AVARICE, like some choaking weed, will teach the fingers to gripe, and the hands to oppress! That REVENGE, like some poisonous plant, replete with baneful juices, will rankle in the breast, and meditate mischief to its neighbor! While unbridled LUSTS, like swarms of noisome insects, taint each rising thought, and render "every imagination of the heart only evil continually!" Such are the usual products of unrestrained nature! Such the furniture of the uncultivated mind!

By all means, then, pay due attention to culture! By suitable discipline clear the soil! By careful instruction implant the seeds of virtue! By skill and vigilance prune the unprofitable and over-luxuriant branches: "direct the young idea how to shoot"—the wayward passions how to move. The mature man will then become the chief ornament of the garden. Around him CHARITY will breathe her sweets, and in his branches HOPE expand her blossoms. In him the personal virtues will display their graces, and the social ones their fruit—the sentiments become generous, the carriage endearing, the life useful, and the end happy and peaceful.

T. BRIDGEMAN.

Receipts for the Ladies. By C. F. To the Editor of the New-York Farmer and American Gardener's Magazine.

SIR—Since you are so gallant as to deem it important, for all those who "value the good will of their fellow-creatures, to get into the good graces of the ladies," I will endeavor, as one of the fair sex, to add my mite to aid you in giving useful information to the public.

Black Veils.—Most persons, when they wish to wash their black crape veils, use vinegar. Washed in coffee, or rubbed with a cloth wet with coffee, gives them a more glossy, black, brighter appearance. Bombazine dresses are cleaned in the same way. Coffee is better than vinegar, as it has less tendency to decompose the coloring matter.

Tea.—Most ladies consider it sufficient that the tea-kettle *has* boiled, and not that the water be always boiling hot when it is poured into the tea-pot. To make a good dish of tea, scald the tea-pot, put in the tea, pour on two or three table-spoonfuls of water; let it stand a few seconds, and then fill up with the water *boiling* hot every time the tea-pot is filled; the kettle should be previously put on the fire.

Bread.—Indian meal improves, in the estimation of almost every one, the flavor of bread. I first boil my meal, instead of simply pouring boiling water on it when mixed with the flour. Owing to the consolidation of the water by boiling, the quantity is greatly increased. The water or moisture is not as easily driven off or evaporated in the baking. Thus made there is a saving of meal, and a greater retention of moisture. Yours, C. F.

Maturity of Grain on Old and New Lands. By Agricola. To the Editor of the New-York Farmer.

I was much amused on perusing in your January number of the Farmer, the communication taken from the American Farmer respecting the difference in the maturity of grain on old and new land.

I believe it will be found that the richer the land the longer all crops will be in coming to maturity. On poor, sandy soils, vegetation is rapid and short; on new lands, the soil, being charged with vegetable food, will of course be richer, whereas old lands, exhausted of vegetable food by cultivation, is consequently poorer; and I conceive it makes little difference whether land be elevated one hundred or a thousand feet above the level of the sea. If it be rich, the crops will be longer in coming to maturity.

We observe this almost daily in our fields; spots enriched by ashes or other manures are frequently green and growing, while the grain adjoining them is perfectly ripe.

If these considerations be taken into view, I think it will not be hard to explain the difficulties which seem to have puzzled the farmers in Ohio. Yours, Agricola.

Yates county, 18th Jan. 1833.

Premiums awarded by the Albany Horticultural Society for the year 1832. Communicated to the New-York Farmer.

[We are pleased to find that this Society has continued its useful operations, notwithstanding the prevalence of the Cholera during the season when the most attention is given to vegetables and flowers.—Ed.]

Asparagus, to J. I. Godfrey, April 14 & 28	$1
Celery, (last year's,) H. Snyder	1
Sea Kale, E. C. Delavan	1
Rhubarb or Pie Plant, J. Buel	1
Radishes, D. B. Slingerland, May 12 & 26	1
Lettuce, S. Van Rensselaer, jun.	1
Cucumber, E. C. Delavan	1
Cauliflower, S. Van Rensselaer, jun. June 9 & 23	1
Cabbages, do.	1
Beets, V. P. Douw,	1
Potatoes, do.	1
Strawberries, D. B. Slingerland	1
String Beans, W. Walsh	1
Lettuce, (open ground,) E. C. Delavan, July 7 & 21	1
Green Corn, W. Walsh	1
Squashes, S. Van Rensselaer, jun.	1
Tomatoes, W. Walsh	1
Cherries, D. B. Slingerland	1
White Currants, S. Van Rensselaer, jun.	1
Red Currants, W. Walsh	1
Raspberries, D. B. Slingerland	1
Lima Beans, R. M. Meigs, September	1
Egg Plants, S. Van Rensselaer, jun.	1
Cauliflowers, E. C. Delavan	1
Musk Melons, D. B. Slingerland	1
Vegetable Oyster, E. C. Delavan	1
Purple Brocoli, M. Eggleston	1
Foreign Grapes, D. B. Slingerland	1
Native do. (Isabella), R. M. Meigs	1
Quinces, D. B. Slingerland	1
Peas, E. C. Delavan	1
Plums, D. B. Slingerland	1

The following Discretionary Premiums were awarded for superior productions:

Tulips and Hyacinths, to D. B. Slingerland	1
Greatest variety of Flowers, E. C. Delavan	1
Best variety of Roses, Buel & Wilson	1
Best variety of Pinks, D. B. Slingerland	1
Splendid varieties of Dahlias, Buel & Wilson	1
Splendid Boquet of Flowers, M. Murphy, gardener to E. C. Delavan	1
Globe Artichoke, S. Van Rensselaer, jun.	1

We certify the above award of premiums for 1832 to be correct.

Edward Dunn,
Wm. Thorburn,
Parent P. Staats,
John Meads,
} Inspecting Committee

Albany, January 10, 1833.

Saving Ashes in a Dry State for the Destruction of Insects, &c. By T. L. Lain. To the Editor of the New-York Farmer.

Mr. Fleet: Sir,—I notice in your January number, page 9, an article entitled "Remarks on the Economy of Peat as Fuel, and the Ashes as Manure, particularly in reference to the Poor---By T. Bridgeman;" and I think with the writer of that article, that if you should succeed in arousing the citizens to a consideration of the subject, incalculable good may result to the community at large, and that your periodical would be viewed as a blessing.

I myself have travelled through various parts of Europe, and can testify to the truth of Mr. Bridgeman's assertion. I have known manufacturers in France make use of peat altogether, for the purpose of driving their steam engines; and it is customary for them to save their ashes in a dry state, which are bought or taken in exchange for future supplies of fuel. They generally fetch about half the cost of the peat; and are highly estimated by cultivators of the soil, not only as manure, but as an antidote for the destruction of insects.

I have the satisfaction, also, of stating that their importance is estimated by some of the farmers and gardeners of this country; and I am persuaded that, if the citizens would be induced to save all their ashes in a dry state, they would soon be able to find customers.—I know a gentleman in New-Jersey who would be glad to buy a quantity of peat and coal ashes, if he could get them dry and clean.

It is impossible to calculate what the value of all the ashes made in the city of New-York would be to farmers and gardeners, if taken care of. Mr. Colquhoun, in his "Statistical Researches," estimates "the value of the turnip crop annually growing in the United Kingdom of Great Britain and Ireland at fourteen millions of pounds sterling," (equal to upwards of sixty millions of dollars); and who can tell what proportion of this success is attributable to the use of ashes? Farmers and gardeners here very frequently get their crops of turnips cut off by the black fly, through neglecting to use ashes and other antidotes for the destruction of insects.

Yours, respectfully,
T. L. Lain.

New-York, January 22, 1833.

Remarks by the Editor.—This subject is deserving of the special attention of gardeners, and of all those who feel interested in behalf of the poor. Mr. Bridgeman says it is customary with housekeepers in Europe to sift their coal ashes every morning as soon as they are taken from under the grates. A frame is attached to an ash house, on which slides a sieve with a long handle. After the contents of the fire-pan are thrown into the sieve, a few strokes to and fro cause the ashes to separate from the cinders. These may be used for backing in the kitchen fire, or consumed in stoves. Thus managed, the ashes compensate for the trouble. Mr. B. thinks by the above plan one half of the expense of fuel is reduced, compared with the practice adopted by housekeepers in New-York.

Forest and Ornamental Native Trees Propagated by Seeds sown in the Spring. By the Editor.

Supposing that many of our readers would be disposed to procure and sow the seeds of valuable forest trees on having the subject suggested to them, we enumerate some of them.

Abies.—This genus embraces the spruces and firs. The seeds should not be taken from the cones until they are sown, which is in March or April. They will flourish on moist sandy and even rocky and comparatively barren soils.

Acer, Maple.—If the seeds have been preserved in dry sand, they may be sown in March or April. A rich moist soil is suitable for most of the species.

Alner, Alder.—Sown in the spring, if properly preserved in the winter. Moist soil.

Betula, Birch.—Seeds, if preserved in sand, may be sown in the warmth of spring in every description of soil.

Castanea, Chesnut.—The seeds are put in the ground in March or April. Sandy loams, or clayey soils free from stagnant water, are the most favorable.

Cupressus, Cyprus.—This tree thrives best in a light sandy loam. Seeds kept in the cones until spring, when they are sown in warm situations or in pots.

Juglans, Hickory.—It is best to preserve the nuts with their husks on until the time of sowing in the spring. Succeeds in almost all soils—rich and loamy the most favorable.

Larix, Larch.—Soil composed of sand, peat, or bog earth, and loam. Seeds sown from their cones in April.

Liquidamber, Sweet Gum.—Succeeds best

in sandy loam. Seeds sown in the spring in boxes or pots, and the plants shaded in summer, and protected from frost in winter.

PINUS, PINE.—Soils sandy and rocky. Seeds kept in their cones until March or April.

QUERCUS, OAK.—If the acorns have been kept from vegetation they may be planted in the spring. All soils—loves a rich loam, with a clayey sub-soil.

ROBIMA, LOCUSTS.—Attains the greatest perfection in light sandy soils. Seeds in March or April.

Importance of Selecting the best Breeds of Live Stock, particularly of Swine. By D. For the New-York Farmer.

MR. EDITOR—I have noticed frequently and with pleasure, your remarks in regard to the importance of a careful selection of the various sorts of live stock raised in our country. If farmers were more particular to select the best breed of all the animals they raise, undoubtedly they would find it much to their advantage. There is perhaps in our country no animal in which there is a greater neglect than in Swine; and it becomes every man who fattens a single hog, to look to it, that he gets one of the right sort. And if this is the case in regard to the man that has but one, how important is it for farmers throughout our country, that they raise only from the best and most approved breeds. It has been thoroughly proved by several persons in this region, during the last two years, that the advantages in the improved breed is greater than was before imagined. Trials have been made between the hogs of the common sort called good, and a breed introduced into this neighborhood by Mr. W. K. Townsend. They were imported from England three years ago, and are called by *him* the *Norfolk thin rind breed.* They are small bone, thin rind, the meat very fine grained, remarkably thrifty, and inclined to fatten early, or will continue to thrive until 18 months old. It is not uncommon for fall pigs kept over the season to the next fall, to weigh from 435 to 460 lbs., and for spring pigs butchered in the fall to go over 300 lbs., and this with ordinary feed. One of my neighbors who, three years since, tried hard to get two pigs of the old breed to weigh in the fall 200 lbs. each, has the last season, with, he says, no more care, or no better feed, made two of this breed weigh 660 lbs. He considers that he has gained at least 100 lbs. of pork on each hog, by the change of breed. These pigs weighed the 1st April 24 lbs. each; A farmer, a few miles in the country, butchered two at 13½ months old, that weighed rising 440 lbs. each, and he says he gave them the same care as he always had given his hogs; he asserts that he has gained fully 200 lbs. of better pork than he generally had, which he says he credits to the breed. An old Revolutionary Pensioner purchased one of this breed from Mr. Townsend's farm in the fall of 1831, then a sucking pig, weighing about 35 lbs.; and as he had made one from the same pen, just butchered, weigh rising of 400 lbs., he declared that he meant, by the next fall, to make this weigh 500 lbs. The hog was butchered say the last of December, and the old soldier has gained one pound over his mark.—These facts are stated to induce others to try the experiment of selecting their pigs from the best breeds. I am convinced myself of the importance of it, and wish others, and especially *Farmers*, to practice on this principle. D.

New-Haven, Jan. 20, 1833.

MISCELLANEOUS SELECTIONS.

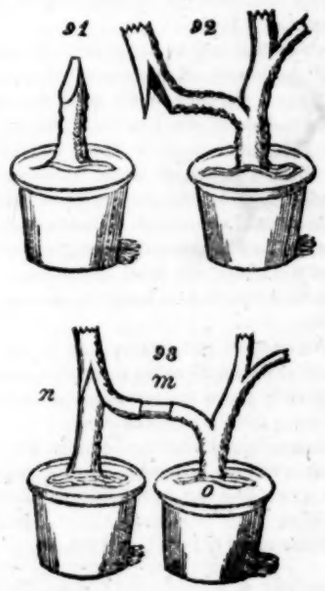
CABBAGES.—It is asserted in Dr. Rees' Encyclopædia, that "cabbages possess the property of fattening cattle not only more expeditiously, but in less proportion than turnips; an acre for the former having been found to fatten one in four more than the same extent of the latter crop."

ON THE ADVANTAGES OF USING COW-WASH IN THE GROWTH OF VEGETABLES, BY MR. WILSON.—Some of the readers of the Register may not altogether be aware of the benefits to be derived from the use of cow-wash in the growth of vegetables. The market gardeners in the vicinity of Glasgow use it in great quantities, which they procure from cow feeders in the city, at the rate of —— per barrel, (a common herring barrel,) and I can from observation vouch for its efficacy. Cauliflower, cabbage, broccoli, celery an asparagus, thrive amazingly with it, and I have applied it myself to gooseberries, currants, raspberries, &c. with excellent effect. They apply it after this manner: a little earth is drawn round the stem of the plant or tree in the form of a basin, into which the liquid is poured. If it be dry, hot weather, this is done in the evening, but if the weather be moist it may be done at any time. When this has been performed two or three times, the plants are earthed up, and receive no more of it. They apply it to their asparagus beds at any time from the beginning of March to the beginning of April. Their celery is planted on ridges five feet wide, in rows across the ridge, at twelve inches from row to row. Before planting they flood the ridge with the wash, having previously dug the bed with a little manure. Nothing answers better than this wash for turnips. I have seen most excellent crops when no other manure was used. The ground for this purpose was well soaked with it during winter. To try the experiment I dug a plot of ground without giving it any manure; one half of this I watered with the wash previous to sowing, and the other half was sown without; the difference was very great; the part watered bore turnips of a fine clear skin and color, and at least a third larger than the unwatered land. Any of your readers who wish to excel in growing vegetables may stir up a small quantity of cow-dung with the wash, and if applied when the plants are in a growing state, I hesitate not to say it will answer their highest expectations: this I speak from experience, as cauliflowers, cabbages, and gooseberries, which have obtained the prizes, I have watered with my own hands. I am satisfied, if farmers in this country were to have a barrel sunk in one corner of their cow-house, and the wash drained into it, and with a water-pot or other means, apply it to their land in moist weather, they would find their labor would not be lost.—[Gardeners' Mag.]

HORSE SHOE NAILS.—Mr. F. Palmer, of Buffalo, N. Y. has invented a new method of making nails for shoeing horses and oxen, for which he has obtained a patent. It is an invention which promises to be of great value to the community and to the inventor, who is at present the principal proprietor. Some idea may be formed of its importance, from the fact that one man can manufacture nails, in this way, at least as fast as fifty men can in the usual way. The nails have been proved to be equally as good in quality, and far superior in point of form.

PRESERVING MEAT IN SNOW.—Meat that is killed in the early part of winter may be kept, if buried in snow, until spring. This is an excellent method of preserving fresh and good the carcases of turkeys and other fowls.

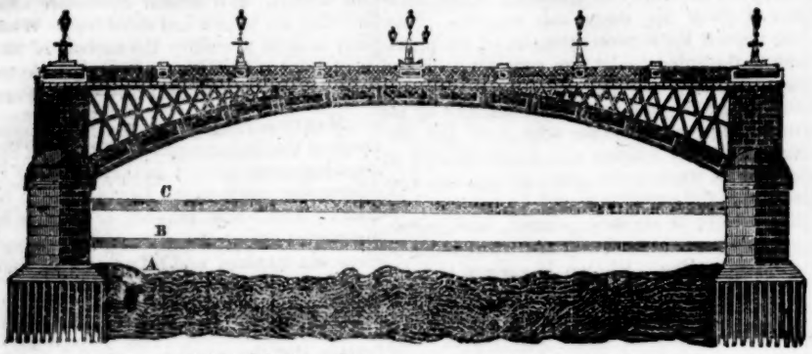
Set an open cask in a cold place; put snow and pieces of meat alternately. Let not the pieces touch each other, nor the sides of the cask. The meat will neither freeze, grow dry, nor be discolored; but be good the last of March. The surfaces of the pieces should be a little frozen before they are put into the snow, that the juice of the meat may not dissolve the snow. The cask should be placed in the coldest part of the house, or in an outhouse.—[N. E. Farmer.]



NEW METHOD OF GRAFTING BY APPROACH.—Cut off the stock in the form of a wedge, as in fig. 91, and cut the graft upwards, half way through, for a sufficient length, as in fig. 92; then place the graft upon the stock, as in fig. 93, and bind it on with bass and clay as usual, taking off a circle of bark between the graft and the root, as in fig. 93, *m*, which will cause the sap to flow through the graft into the stock *n*, instead of into its own root *o*. I recommend this method for grafting whenever the stock and the graft are of the same size, or very nearly so.—[Loudon's Magazine.]

BALTIMORE AND OHIO RAILROAD.—From the Baltimore Gazette, we learn that the receipts for the current half year will be 92,500 00

Deduct expenses incident to transportation,	38,691 84	
Do. Repairs to the road,	4,500 00	
		43,191 84
		49,308 16
It is proposed to declare a dividend of one dollar per share for the six months, amounting to		40,000 00
Which would leave a surplus of		9,308 16



A, bed of the river—B, low water mark—C, high water mark.

[*From the London Mechanics' Magazine.*]

SOUTHWARK IRON BRIDGE. Architect, Rennie. 1814–20.

For several centuries the only direct means of communication from the Borough of Southwark to the city of London, was by passing over London Bridge, the then only bridge across the river Thames. Since the time of Stowe, however, (who mentions that bridge with particular satisfaction,) the rapid extension of the Borough had frequently suggested the great necessity of some more direct means of communication to the heart of the city. But it was to our own times, that the ultimate execution of his design was reserved. The successful projector of the scheme was Mr. John Wyatt, proprietor of the Repertory of Arts. In 1807, that gentleman first turned his attention to the subject, and labored incessantly, and in spite of every obstacle, till the year 1811, when an Act of Parliament was obtained, authorizing the necessary sums to be raised, amounting in the gross to 400,000*l.* in transferable shares of 100*l.* each; and containing permission to raise (by way of mortgage or annuities) the sum of 100,000*l.* should such further sum be required to complete the works with its necessary approaches, and for securing the subscribers against extra calls over and above the amount originally stipulated for.

The Committee of the proposed Bridge consisted of the following gentlemen:—Sir J. Jackson, Bart. chairman; John Allnut, Esq. Chas. Barclay, Esq. M. P. Samuel Davis, Esq. East India Director; Robert Pott, Esq. Henry Perkins, Esq. Charles Price, Esq. George Ranking, Esq. John Ramsbottom, Esq. M. P. Wm. Salte, Esq. William Slade, Esq. John Taylor, Esq. M. P. William Williams, Esq. Banker; and Sir Joseph Yorke, Bart. M. P. Whether any other committee was formed prior to this, I am unable to determine, but the before-mentioned names agree with those given in the "Repertory," as also in the copy of a Prospectus now before me.

Mr. Wyatt, it appears, was at the time personally acquainted with the late John Rennie, Esq. who, at his (Mr. Wyatt's) recommendation, had professional conferences with the Committee of Management on the propriety of erecting the bridge, and the nature of its construction. Mr. Rennie was, of course, satisfied that a bridge was required, and the Committee being satisfied that the care of its execution could not well be placed in abler hands, gave the necessary directions for designs and drawings to be prepared for their inspection. Accordingly Mr. Rennie furnished two designs for the intended bridge; one of stone, to consist of five arches, and one of iron, to consist of three arches, with granite piers. The latter design was preferred and carried into execution. (See above engraving of centre arch.)

The works, however, were not commenced until the year 1814—operations being stayed by parliament till such time as all the shares were disposed of. It must be admitted that this undertaking of Mr. Rennie's was bold and arduous in the extreme. Little is known at present as to the best mode of constructing bridges of iron. The great number of the parts, and the paucity of scantling compared with stone bridges, and the immense labor in fixing those parts, render it, in many respects, a distinct arrangement in bridge-building. Also, if we consider the enormous spans of the arches of Southwark Bridge, and the number of them (only three), we cannot withhold our commendation from the scientific individual who conceived and carried into execution so bold a project.

The invention of iron bridges is due to British mechanics. It is said that the first bridge of this description was invented by Mr. Thomas Paine, and intended for America as the subjoined list will show. The repeated failures of iron bridges show clearly that experience is still wanting to render them of sufficient permanency.

The following are the most remarkable Bridges of Iron not of the suspension kind:

	Dates.	Architects or Builders.
Southwark, London	1814.20	J. Rennie
Colebrook Dale, over the Severn	1779	Darby
Mr. Paine's bridge, intended for America, but not having money sufficient the arch was taken down by the builders, Messrs. Walker, of Rotheram; part of the materials were employed in building Sunderland and Wearmouth in 1790.	1790	
Over the River Wear	1793.6	Walker, Wilson, Burden
Buildwas, (Colebrook Dale Company)	1795.6	Telford
Tame, Herefordshire—when centering was removed (failed)	1795.6	
Parret, at Bridgewater, Dale Company	1796	
Staines (failed twice)	1800	
Tees at Yarm (failed)		
Boston, in Lincolnshire, and two over the New River at Bristol,		

[*From the American Railroad Journal.*]

FOOT RAILROADS, No. II.—In No. 23, Scientific Tracts, it is stated that a horse, at five miles an hour, usually exerts the force necessary to raise 45 lbs. over a pulley, and draws on a level railroad about four tons. At two miles an hour, he usually exerts a force necessary to raise 112 lbs. and draws on a level railroad about 10 tons. It is computed that a man can draw on a horizontal line about one-seventh the load a horse can draw; and therefore, he could draw at two miles an hour 29 cwt. or more than two horses could draw on a common road at four miles an hour,—and more than a yoke of oxen could draw at two miles an hour. One man on a level railroad could move, at two miles an hour, more than a yoke of oxen could move at the same rate on a level road. But, on a railroad, there will be some portions where the road will not be perfectly level. If, in these portions, there is a rise of one foot in eighty, or sixty-six feet in a mile, then, to overcome this ascent, there must be exerted a force sufficient to raise over a pulley one-eightieth of the load, in addition to the force necessary to move it forward on a level. To move it forward on a level, he must exert a force sufficient to raise 16 lbs. over a pulley; and, in addition to this, to draw 29 cwt. up an ascent of one foot in eighty, he must use a force sufficient to raise 40 lbs. over a pulley. A man, therefore, who with a cord over a pulley can raise up 56 lbs. can move a load of 29 cwt. up a railroad ascending one foot in eighty, or sixty-six feet in a mile; and, on a level, he can move such load as easily as he can raise 16 lbs. over a pulley. This shows the vast advantages of a railroad over a common road. The inquiry may now be made why a narrow, and therefore a very cheap, railroad may not be made for the use of men! If they can move forward on such a road only one ton, or even half a ton, they could easily do on one such road all the transportation that is needed on most of the routes leading to our principal market towns. Let those who have heavy articles to transport, and those who regard the welfare of the community, inquire into this matter. PUBLICOLA.

[*From the London Mechanics' Magazine.*]

DOMESTIC SELF-ACTING PUMP.—Sir: I am desirous of knowing whether any method has been used to apply the force of a small stream of water, having a fall of about 60 or 70 feet, by hydraulic pressure to raise a large portion a less distance. I want such a force to produce power by raising a portion of water about six or eight feet in height, into a water wheel, by a stream about 300 yards distance, having a fall as above. It will be seen from the subjoined, from the Imperial Magazine, that such a method has been tried on a small scale with success.

I remain, Sir, yours, respectfully,
A. B. C.

"That such a pump is perfectly applicable to all domestic purposes is proved by the fact of a very small one having continued working for three months without being touched, raising about two tons of water in 24 hours; it acts entirely without friction, and by its means, the rain water collected at the top of the house will pump up a corresponding quantity of water from a well as deep as the house is high.—Its principle depends upon the alternate filling and emptying of four reservoirs with air and water by means of pipes and valves: invented by Jas. Hunter, Esq. of Thurston, in Scotland—the principle of which is to raise water above the original reservoir by the descent of a certain portion of it."

WOODWORTH'S PATENT PLANING MACHINE.—A Machine patented under this title is now in operation at the Furnace of Messrs. Stickney & Yerrington, in this village. It is designed for planing, tongueing, and grooving, floor-plank, ceiling, &c. It performs the labor in a workmanlike manner, and what is unquestionably of much importance, brings the plank to an equal thickness and width. It will finish 18 feet of plank per minute, thus accomplishing an amount of labor equal to 35 men, during ordinary working hours, at an expense of about one-sixth the usual rate. It is far from being complicated in its construction, and is consequently not liable to get out of repair. Three knives are placed upon a cylinder, which revolves about 2300 times per minute, by which the planing is effected, and tongueing and grooving by a process somewhat similar. Should the location of the machine make it necessary to propel it by steam power, the shavings would evidently furnish a large proportion of the necessary fuel. The invention seems to be one of practical utility, and cannot fail of being an important acquisition, wherever building to any considerable amount is in progress.—[Lockport Balance.]

[*From the Southern Agriculturist.*]

MANURES.—We were highly gratified in discovering the interest which is taken by the planters generally, in the subject of manures. At one time, if a farmer could get enough to manure a portion of his corn crop, he thought he did well—as to manuring his cotton, it was out of the question; and there are some who are now zealously engaged in the system of manuring, who at one time absolutely ridiculed the idea of a planter ever having as much manure as would enable him to apply any to his cotton crop. Now, great attention is paid to this subject, and it has become one of considerable importance. We witnessed with much pleasure the operations made on several plantations for collecting and making manure. In one pen the pine straw was at least three feet deep, and they were still engaged in hauling in more. The cattle had not been in it long, and this depth would decrease as it became more trampled.

The better to secure all the advantages to be derived from penning cattle, D. H. Ravenell has recently erected an extensive range of sheds for his cattle. The space enclosed by these sheds and pens is a square half acre; the principal range is on the north side, 150 feet long and 16 feet wide, boarded on the north side and shingled; two wings project from this, one on the west side, 40 feet long, and the other on the eastern, 80 feet in length—these both face inwards, and are boarded at the backs. The pen is made by large posts sunk into the ground, with oak rails nailed on, and the whole capped by a large piece fixed to the posts with mortices and tenons. It is divided into three divisions—one for oxen, one for milch cows, and the other for dry cattle. This pen is used only during the winter, and the cattle are here regularly fed at night on cotton seed, corn husks, &c.

But although much attention is now paid to manuring, it is far from being carried on as systematically, or to as great an extent as it might be. The fact is, that even those who are most engaged do not employ all the means within their power, nor employ all of the substances which might be collected and advantageously used. They all depend too much on the cow-pen and stable; and we have heard it seriously urged, that the planters in that neighborhood never could manure all their cotton crops, because cattle enough for this purpose could not be supported in the several ranges. This idea, we fear, has done much to retard the extension of this system, and consequently been prejudicial. It is still fresh in the memory of most of the planters, when no part of the cotton crop was manured at all, all being retained for the provision crop.

Now, numbers manure, not only all of their provision crops, but even a large portion of the cotton—some as far as half. The knowledge of this fact should serve as an incentive to use greater exertions. We have, however, little fear on the subject; the importance of manuring is duly estimated by most of the planters. A commencement has been made—thus far the attempt has been eminently successful; and we, therefore, cannot fear that in such an intelligent community, it will either languish or be discontinued.

Before quitting this subject we will make one suggestion; it is this—that all the materials fit for manure, and within the reach of the planters generally, are either not used for that purpose or in much less quantities than they might be. The pens and stables are chiefly depended on, and each planter estimates his capability of manuring by the number of stock his range can support. Now we request the serious attention of the planters to this subject—let him consider well, and we are certain he will discover that he has the power of increasing the quantity of his manures greatly. Some who have but few cattle do not employ any hands steadily at carting in trash to the pens, giving, as a reason, that the quantity would be too great for the number of animals penned, and consequently it would be weak, and when used, be of little service. We would suggest to those thus situated, that they continue to employ one cart and two hands steadily, and instead of hauling in pine straw and leaves every day, they should bring in only enough to form a thick layer, and then cart in on this swamp mud, mud from the ponds, and when these cannot be had, top-soil from the woodland, and when a layer of this has been formed, then place on it another of pine straw, &c., thus making alternate layers, keeping the cattle penned on it nightly. In this way a large addition would be made to the usual quantity, whilst the quality would not be at all inferior.

In addition to this, each planter should have a small stercorary, or receptacle, made near the offices, into which all the soap suds, trash, and offals, which are gathered around these, may be placed, and not left to offend the eye and manure noxious weeds;—to this the sweepings of the hen-house could be added, and earth be thrown in to absorb the surplus moisture, as it became necessary.

In manuring the crops generally, a system should be entered into, and this persevered in as far as practicable, due regard being had to the crops and the soil to be manured.

A NEW AND VALUABLE MELON.—For many years past, the editor of the American Farmer has been endeavoring to obtain the seeds of a melon known to exist in the South of Europe, and possessing the valuable property of keeping till late in winter. We have, indeed, several times succeeded in obtaining the seed, but untoward circumstances as often frustrated our attempts to cultivate it.—We have been particularly indebted to our friend, Mr. Legare, Editor of the Southern Agriculturist, for this seed. He has succeeded twice in maturing a few melons. We have, however, now been put fairly into possession of not only the seed, but the fruit itself. Near three months since Henry Thompson, Esq. received from his correspondent at Malaga, in Spain, two dozen melons in fine preservation. Their true character was, at first, not suspected, and many of them were cut, and proved insipid; but on our suggesting that they were winter melons, the remainder were preserved. Mr. Thompson kindly presented us with a pair of them, which we cut last week, and though they had begun to decay, (one of them having one-third of its substance rotten,) they proved very rich and fine. One was cut in the family of Mr. Thompson, week before last, that was perfectly sound, and it scented the whole house with its fragrance. These melons are very large, with a very thick, greenish white flesh and thin skin. They are of a dark green, nearly smooth, with something of the appearance of a watermelon, and of an oval shape. If we can succeed in adopting these melons to this climate, there can be no doubt of their great value as a new and delicious addition to the dessert, at a season heretofore affording nothing but apples and dried fruit. Whatever can be done to ensure the success of the present attempt to cultivate it, the public may be assured will be attended to.—[Am. Farmer.]

MANUFACTURE OF SALT.—The annual report of the Superintendant of the Salt Springs and Inspector of Salt in the county of Onondaga, was made to the Legislature on Saturday. The whole number of bushels of salt inspected during the year 1832 was one million six hundred and fifty-two thousand nine hundred and eighty five; of which one hundred and eighty-seven thousand six hundred and fifty-three were coarse salt. The report states that the number of manufactories are substantially the same as at the time of the last annual report, two or three having been erected and the same number gone to decay.

BEE HUNTING.—I was very much amused a few evening's since, by one of your subscribers, a bold, enterprising young man, who had employed some of his leisure hours in exploring the forests in search of those patterns of industry, the honey bees.

The result of his skill and labor induces me to communicate the facts to you, as they may not be wholly devoid of interest to some of your readers.

About the first of October last, he started on an expedition for the purpose of procuring honey; furnished with a box and a vial of honey, with which he, from time to time, replenished, as fast as it was consumed by those bees which he caught by the way and imprisoned.

After having plentifully partook of this alluring bait, the bees are liberated, when they immediately rise above your head, and after wheeling round in circles a few times, as if to note particularly surrounding objects, they dart off in "a bee line" for their hidden retreat. The direct course which the bee pursues points out the precise path to be followed, which is done for some distance, when if there exist any doubt in the mind of the hunter as to his being on the trail, another bee is suffered to escape, who, imitating the example of his predecessor, perhaps changes the hunter's course materially. Once, after having caught a bee and fed it, he remained stationary a few moments, when, to his surprise, the bee returned, accompanied by a companion to whom he had communicated the *sweet* intelligence of his discovery. On another occasion, he carried with him a straw hive, in which was deposited a piece of comb, upon which was poured diluted honey, and one or more bees placed within, who having filled themselves were "*off in a tangent*" to make a deposit, and procure a reinforcement sufficiently large to enable them to bring off at once this accumulation of sweets; which they did, to the amount of nearly one half of their colony. By following this line of communication, which was constantly kept up, he was led without much difficulty to the common store-house, which was situated in the trunk of a large oak, about thirty feet from the ground. The tree was felled preparatory to commencing the conflict. And, counting the cost, he prepared himself "to meet him that was coming against him with twenty thousand," by fastening a piece of millinet over his face; he then, with a stick, detached portions of the comb until he had secured the whole.

In the meanwhile his antagonists were fap

from being idle; and at every vulnerable point they plied their weapons of defence with such vigor and resolution that his firmness began sensibly to abate; but, upon reflecting a moment, he resolved that Yankee courage and perseverance should accomplish the object. This was thoroughly effected, and the reward of his toil and sufferings was seventy pounds of honey in the comb.

I am inclined to think there are vast quantities of honey made and consumed annually in our forests, which would afford a handsome revenue to those who should enter with spirit into the business. It would not only give them a profit, but also teach them a habit of *close observation*, from which would arise much permanent good to themselves, and be made a means of much good to others.

If this hasty and imperfect production is worth your notice, you may give it a place in your columns. I regret very much that I have not time to spare, so that I might labor more for the general good. I hope to be more at liberty soon, when you shall be remembered.—[Northern Farmer.]

VALUE OF SCIENCE TO PRACTICAL MEN.—That an individual may not become a tolerably successful farmer or mechanic, by serving a long apprenticeship in his particular calling, we will not deny. So long as he shall precisely follow the same beaten track, and find the same combination of circumstances which had all along attended on his former success, he will not feel the want of that science, which explains the why and wherefore; but whenever a different combination of circumstances shall arise he will meet with phenomena which he cannot explain, and with obstacles which he cannot overcome. He will, like a man who has lost himself in the wilds of a forest, without compass or pilot, and without confidence in himself, be found at every step to be wandering still further from the right road.

As strongly illustrative of the correctness of the position here laid down, we will relate a single fact. Some thirty years ago we knew a mechanic, respectable for skill in the business which he pursued. He had learned the business of making common suction pumps: knew well how to construct every part of the machinery, in a workmanlike manner; his pumps had always worked well; and he had become the most popular pump-maker in the whole country. At length, unfortunately for him, he was employed to make a pump for a well something like forty feet deep. The well being thus deep, it was necessary to splice the timber of which the pump was formed; this he did in the nicest and best manner; finished his pump and placed it in the well; and, with the utmost confidence began to work the pump; but could not raise a drop of water to the top of the well. He now felt that his reputation was at stake, and he continued to labor and tug at the pump-handle, but the water was still obstinate and would not rise above the lower box; when the handle was by great strength forced down, it would fly back with great violence; and, in short, it required so much power to work the pump, that had it raised the water, it must have been useless. To our practical man, all this was perfectly inexplicable. He had spliced pumps before, and found no difficulty in making them work; and, as he supposed the difficulty in this case must be a leak in the joints of his pump, he took it up, and examined it, and re-examined it, and caulked it, and re-caulked it, and put it back again. But, all would not do. The pump would not work. And after wasting something more than a week's labor, and suffering all the perplexities, and mortifications of disappointment, he was compelled, though with great reluctance, to give it up. Now all must acknowledge that, in this case, a little science would have been of great practical use. Had our practical man possessed a competent knowledge of the principles of hydraulics, and of the agency of the atmosphere, in raising water in a common suction pump; and that water could not be raised in this way more than thirty-two feet, or to such height as to be equal to a column of the atmosphere in weight (which in very few situations exceeds that elevation,) he could not have been subjected to all this chagrin and loss of labor.—[Northern Farmer.]

[*From the Baltimore Gazette.*]

STEAM CARRIAGES ON TURNPIKES.—The many trials during the last few years, in England, to run steam carriages upon turnpike roads, having excited the public attention, and these trials, or experiments, (for as yet they are nothing more,) having induced in some persons a belief that steam can be advantageously introduced as a power of conveyance upon the turnpike roads of this country, it may be proper to give the subject some reflection.

Perhaps in no country in the world are turnpike roads better made, or kept in a higher state of repair, than in England: nor is there any other in which the steam engine and steam works are better understood or more easily and cheaply constructed and used: at the same time, animal power there is comparatively dear, population redundant, and mechanical talents extremely active. It is, consequently, in that country, if any where, that we should look for experiments of this kind; and especially since the full establishment of the success of the Locomotive Steam Engine upon railways. The application of the steam engine to conveyance upon land, as well as upon water, had been a favorite idea with men of mechanical genius, from the time that engine had first been successfully applied in the propulsion of machinery. Accordingly, near the commencement of the present century, experiments began to be made with steamboats and steam carriages simultaneously, or nearly so. Nearly 20 years from the commencement of the first trial served to bring the steamboat into full and profitable use—and a period of equal duration elapsed between the first attempt and the successful running of the Locomotive Engine upon railways. The complete success, however, of this Engine in the rapid conveyance of persons as well as of commodities, was not attained till about five years more had elapsed in the year 1828. Since that date the astonishing results with the Locomotive Engine, in its speed and effective power of traction, have been brilliant and demonstrative.

The principal difficulties that so long retarded the perfecting of steamboats were, in the first place, the enormous resistances to be overcome, especially at considerable velocities or in the stemming of currents, since the opposing force of the water to the progress of the boat was as the squares of the relative velocities, and even rather greater than in this proportion. In the second place, the then state of the steam engine was not only cumbrous, but it was such as to require a much greater quantity of fuel than at present. With these two difficulties to contend against, added to want of experience with regard to the best form for the boat, and the proper description and arrangement of the paddle-wheels, the boat was at first loaded down with the machinery, furnace and fixtures, whilst her motion through the water was extremely slow. Through the efforts of science and great perseverance, however, these difficulties have been so far overcome, that the steamboat now ranks amongst the most splendid achievements of man.

It was at first perceived that the resistance to the motion of carriages upon an iron railway was very small, and that this resistance did not augment by an increase of velocity. It was the same in any given distance along the railway, let the movement be fast or slow; for this is the law of friction; and there was no fluid or other substance on the smooth, hard, even surface of the iron rail to be displaced by, and to lessen the momentum of the wheels. Here was an important principle, altogether unlike that which opposed the motion of a boat through the water, and to this principle, added to the smallness of the friction, or resistance attainable on railways, is owing the possibility and utility of the Locomotive Engine; and it will be to the full developement of this principle that we shall yet be indebted for a fleetness of locomotion hitherto unpractised, and of which, doubtless, if the facts could now be enunciated, they would be received with unbelief and startling dissent.

But whilst the buoyancy of the water and the spaciousness of the vessel allowed comparatively slight improvements in the arrangement and working of the steam engine, as sufficient to enable it soon to approach the point of practical efficiency in the steamboat, it was quite otherwise in the steam carriage, where, in comparison, the space to be occupied by the engine, water, and fuel, was necessarily of very limited extent, whilst in point of weight their limits were likewise narrowly described. It was not easy to reduce the steam engine to the requisite portability at the same time that it should be capable of generating and working off steam enough to make it sufficiently powerful and fleet.

Of all the different kinds of steam engines that had been invented and used, but one only united the attributes applicable to locomotion upon land, viz: *The high-pressure non-condensing engine*, and this, for the greatest economy, to be worked *expansively*.

This kind of engine, from its simplicity, lightness, power, and lesser quantity of water and fuel, was soon found to be peculiarly well adapted to the purpose; nevertheless, it has been only within the last three or four years that the makers of Locomotive Engines have been enabled to combine in them the requisite qualities of lightness and efficiency, that have given eclat to this splendid application of steam, and the locomotive engine has now become as permanently established as any labor-saving machine. Yet it is believed that further improvements will be made, especially as to the generation of steam, which will probably be immediately followed by the rejection of the tender carriage as an appendage then no longer necessary. This step by enabling the engine to draw one or two additional cars, freighted with persons or goods, would alone increase its useful effects perhaps 12½ per cent.

Whilst the steam engine has proved eminently successful in its application to the propelling of boats upon the rivers, the bays, and the lakes, and of the Locomotive carriage and its train upon railways, still this potent prime mover has not yet been established as a motive power upon turnpike roads, notwithstanding that the unceasing anxiety of ingenious mechanics and inventors have been directed to this object for nearly half a century, or at least for more than thirty years. Very many carriages, perhaps some hundreds of them, have been contrived and constructed, and many of them for a time manœuvred on good roads, for limited distances, and with very little or no loads; at times performing feats of notoriety, and then disappearing with the evanescence of a meteor, whilst in one or two instances passengers have been for a short time conveyed by them on a very level good road, as between Cheltenham and Gloucester, and on some of the roads near London, but as yet it has been impracticable to continue them in operation any considerable length of time, *under the most*

favorable circumstances of road, partly on account of the frequent failures in their machinery: so that, much as we may regret it, the fact appears to be, that after an unprofitable expenditure of perhaps more than £100,000 in the whole, *there is not yet a single line of Steam Carriages usefully and permanently established on any turnpike road in England.*

The failure in the success of steam carriages upon turnpike roads, however, is mainly attributable to the resistance which these roads offer to the progress of the wheels. Unlike railroads in this respect, turnpike roads oppose a resistance that increases as the velocity increases. Upon the latter the carriage wheels pass upon a yielding surface of more or less firmness and tenacity, but which nevertheless gives way to their action. Semi-fluid substances, dust, earth, sand, gravel, and broken stone, are wrought up and displaced with a greater force, and a greater quantity of motion is imparted to them by the wheels at each increase of velocity, and hence the higher the velocity the greater is the absolute loss of momentum in the carriage. But whatever may be our speculations as to the cause, or its intensity, the fact has been well established in a series of careful experiments made upon the Holyhead turnpike road in England. This is an excellent road, both in point of construction and repair, made under the direction and according to the plan of Thos. Telford, Engineer, and frequently styled the Telford road. A set of experiments were made under the direction of this Engineer, in order to ascertain the traction at different velocities with a stage coach weighing, exclusive of seven passengers, 18 cwt.—The trials were at the respective velocities of 6, 8, and 10 miles per hour, on each of five different pieces of road, ascending at the rate of 1 in 20, 1 in 26, 1 in 30, 1 in 40, 1 in 600, respectively, and the results of the traction at the different velocities in passing up these ascents are given as follows, viz:

Rate of ascent.	Force required in pounds at 6 miles.	at 8 miles.	at 10 miles.
1 in 20	268	296	318
1 in 26	213	219	225
1 in 30	165	196	200
1 in 40	160	166	172
1 in 600	111	120	128

Thus it is proved that the force of traction on a turnpike road varies with the velocity; that is to say, the force required to pass over one mile, or any given distance, at the rate of 10 miles per hour is greater than that required to pass with the same load an equal distance at 8 miles per hour, and the resistance on an equal space at 8 miles per hour is greater than it is at 6 miles per hour; so that the resistances upon turnpike roads are not as on railways directly as the spaces passed over, let the velocities be what they may; nor are they as the squares of the velocities, as is the case with boats moving in water. On the contrary, the resistance upon turnpike roads appears to have a ratio in a manner intermediate between those which occur upon railways and in navigation.

There appears a remarkable uniformity in the increase of resistance from 6 to 8, and from 8 to 10 miles per hour; so much so, that we infer the augmentation to be directly as the increase of velocity. The experiment on the ascent of 1 in 30, whilst it also shows an increase of resistance, appears to depart from the condition of uniformity observable in all the other instances, but this is readily accounted for on the probable supposition that at 6 miles per hour the wheels did not pursue the same track as in the trials at 8 and 10 miles.

Now the resistance to traction in these experiments, as well as in all cases where a carriage is made to pass up an ascending line of road, is the sum of three different and distinct forces, that is to say, 1st, The friction caused by attrition at the axles; 2d, The resistance at the peripheries of the wheels on the road; and 3d, The gravity overcome in the ascent. The 1st and 3d of these forces are as the distances passed over, and would be the same whether the velocity was 6, 8, or 10 miles per hour, or any other velocity. Therefore the augmentation at the increase of velocity was owing to the nature of the 2d source of resistance. The true reason why this element should so increase, we have probably already given.

Analising these results by separating the three forces, and adopting the clear indications of an increase of resistance at the road-surface in proportion directly as the increase of velocity, it will be found that the resistance from the 2d source will be twice as great at 12½ as at 2½ miles per hour. Now, as the road may be worse or better, the resistance at the road-surface in a velocity of 2½ miles per hour will be greater or less, and so likewise will the augmentation of this particular resistance at higher velocities be greater or less in the same ratio, the effect being proportionate to the cause; consequently, whatever may be the initial resistance at the road-surface, or its amount, say at 2½ miles per hour, it will duplicate at a velocity of 12½ miles per hour.

The resistance at any velocity on a level railway properly constructed may be set down at 10 lb. per ton, of which the friction at the axles is 8 lb. and the resistance at the rails to the rolling of the wheels is 2 lb. per ton of the incumbent weight.

The general average of the resistance to traction on a level M'Adam road may be considered equal to that found from experiment in dry weather on the Holyhead road, 77 lb. per ton, of which the friction at the axles may be 19 lb. and the resistance at the road-surface 58 lb. per ton, the velocity being 2½ miles per hour.

Hence the average resistance on a good M'Adam road in a velocity of 2½ miles per hour is nearly 8 times that on a railway.

At a velocity of 2½ miles per hour, however, on the turnpike, the resistance at the road-surface will be doubled, and the traction will become 135 lb. per ton, being 13½ times that on the railway.

Considering this immense disparity in the resistances on the two kinds of road, and that the steam carriage to make good an average of 10 miles per hour on the turnpike road must actually travel at the rate of 12 or 12½ miles per hour, is it surprising that the introduction of these carriages upon turnpike roads should not have been accomplished.

Moreover, we have just been calculating only with the *average* resistance upon the turnpike—whereas, instead of a resistance of only 77 lb. per ton at 7½ miles per hour, there will frequently be found portions of the same road, likewise horizontal, where the resistances will be as great as 107, 111, 114, 146, 171, and even of 228 lb. per ton at the same velocity of 2½ miles, as the experiments on the Holyhead road evinced. The highest of these is already, without being increased from a velocity exceeding 2½ miles per hour, more than 20 times the resistance on a railway.

Now when we add the force necessary to surmount ascents, we hesitate not to say, that there is no turnpike road of any considerable extent in this country upon which it is probable that steam carriages can ever be made to run; and it is the opinion of eminent English Engineers, amongst whom is the well known Engineer and author, John Farry, and who are fully conversant with the experiments of Gurney, Hancock, and others, that there is scarcely a road on that Island upon which these carriages can run without the aid of post horses at the ascents, on account of the mechanical difficulties attendant upon overcoming the gravity in addition to the very great retardation from friction and resistance at the road-surface, to be constantly encountered, even on the horizontal parts of the road. Such, indeed, is the amount of the resistances to be surmounted, that the adhesion to the road of the propelling wheel, for one only can be used as such in curved and angular parts of the road, will be inadequate to the traction in very many instances even with the maximum load of two tons on the wheel. In which case should the steam be sufficiently powerful, the wheel would continue to revolve without advancing the carriage. It is probably true that the adhesion upon a turnpike road on account of its roughness is greater than on an iron railway, and the amount of this force, available in traction, may be as 5 to 8 on the two respective kinds of road. It must, however, be recollected that upon railways there has never been less than two of the wheels of the locomotive employed as propellers, whilst it is entirely practicable at the same time so to use all the four wheels; whereas, upon turnpike roads, on account of the great and sudden changes in direction which have almost continually to be made, but a single wheel at a time can be generally in gear so as to act through its adhesion as a propeller; and that it will be only occasionally and on the straight parts of the road that two wheels at the same time can be used in this manner, nor can more than two be so employed at any one time. Upon turnpike roads, the wheels must be perfectly cylindrical, whereas upon railways the principle of the cone is admirably and efficiently available in effecting changes in the direction of motion. With these comparative advantages and disadvantages in the two systems, there can be no doubt, that though upon the turnpike the absolute adhesion is greater than that on an iron railway, yet relatively, as to the number of wheels that can be so employed at once, it will be less, and, regarding the resistances to be overcome, vastly less.

Taking into account the very slippery state of turnpike roads at times, from wet calcareous earthy matter, mud, frost, ice, and snow, it is to be expected that whatever success may, in favorable states of the weather and the roads, ultimately attend the employment of steam carriages, still their use upon turnpike roads will frequently be much circumscribed and at times discontinued; whilst, at all times, upon roads of a horizontal grade, or nearly so, must be the only theatre upon which they can perform with useful effect. New lines of road must therefore be traced out, and new roads formed upon principles entirely adapted to this machine, at an expense beyond any thing we are accustomed to in this country, in relation to turnpike roads. This state of things, however, can never be justified, unless the practicability as well as the economy of this application of steam shall be fully and permanently ascertained, not in England only, but likewise in this country, where horse power for some ages to come will continue to be comparatively cheaper than in England.

Regarding the resistances to be met with even on level roads, it will be scarcely less practicable to simplify the engine and its appurtenances so that the carriage with the engine, water fuel, and attendants, shall not (without an accompanying tender carriage) exceed 6½ tons in weight, on four wheels, and when three-fifths of the whole weight bears upon the road through the two propelling wheels, this is the maximum weight, having respect to the necessary economy in relation to the wear of the road and the durability of the wheels. The adhesion from a less weight than two tons on a wheel will doubtless, in practice, be found to be inadequate to the high degree of traction required even on the nearly level parts of a good M'Adam road. Then supposing to have been ascertained what, if possible to be done, still remains unknown; that is, that such a steam carriage has been perfected in all its essential details, in England, and that its employment there is found to be economical; it would still be proper for us to inquire whether it could be economically used *here*, and whether the saving over horse-power would justify the making of the necessary new roads. And, finally, whether, if the cost of a new road upon very extensive principles had to be incurred to satisfy the ends of trade and intercourse, it would not be better to adopt the railway, upon which the power would be ten fold more efficient.

The utmost that such a steam carriage could perform under the most favorable circumstan-

ces: that is, in the summer season, on a good M'Adam road, nearly level, and not ascending at the rate of more than 1 in 60, or for short distances, not more than 1 in 30, and this ascending line, straight, would be the conveyance of a single stage coach of 18 passengers and their baggage, at a rate not exceeding 10 miles an hour. What it could do in the winter season cannot be foreseen, nor is the analogy to railways sufficiently great to enable us to draw a definite conclusion from thence touching the probable relative performance of such engines upon turnpike roads in winter. Upon this point every one can form his own opinion, knowing with what facility the tracks of railways can be cleared of snow.

Two modes of using steam carriages have been proposed and advocated by their respective projectors, viz: the one in which the steam carriage is to draw after it a separate carriage containing the passengers—the other where the passengers are to be carried on the steam carriage. Could the latter be effected, some mechanical advantage over the former would attend it: it would however form a very cumbrous machine to be large enough to contain the engine, fuel, water, attendants, and passengers, with the requisite accommodation for the latter and their baggage, *all on four wheels*—whilst the expense could not materially vary in either mode.

It is altogether probable that should this method of conveyance be successful, convenience will require a separate carriage to be adopted. An English Engineer of eminence has said, in relation to this subject, that "all the constructions that have yet been tried with one carriage subject the passengers to more or less occasional annoyance from heat and noise, smoke and dust, and there is still an apprehension of danger from the boiler: hence passengers will invariably prefer to go in a separate carriage to be drawn by the engine-carriage; that mode also offers a facility of changing the engine for another, or for post horses, in case it gets deranged, because the change may be made without unloading and discomposing the passengers. For common stage coaches there are strong motives to use a separate carriage, and if it can be brought to bear in comparison with horses, that mode will probably be most generally adopted by the influence of the passengers."

The expense attendant upon the running of a steam carriage on a turnpike road will be much greater at an equal velocity than that of a locomotive of equal weight upon a railway, the resistance upon the former will be great and varying, and the consumption of the fuel will be enhanced probably 50 per cent., whilst the rapidity with which the steam must be generated in a boiler of such limited dimensions as it is believed must be used, and the very high degree of the elasticity of the steam employed, will likewise add greatly to the expense from the frequent failure of the parts in contact with the fire and steam. It is in evidence that the steam usually worked in the late experiments on turnpike roads had a pressure of 250 to 300 lbs. to the square inch. The difficulty of working steam of this enormous pressure is very great, it being impossible to keep the joints of the boiler, pipes, &c. sufficiently tight but for a very limited time. From this cause the expenditure will also be much increased. Again, the breakage and wear and tear upon the turnpike road on account of its greater roughness and unevenness will exceed that upon the railway, and consequently a greater number of spare engines for contingencies must be kept on hand. When all these relations are weighed, it appears probable that the daily expense of maintaining a steam carriage in full operation on a turnpike road will very considerably exceed that of a locomotive engine upon a railway. We should not in our present state of imperfect knowledge in this matter, and having in view the pay of engineers and other agents, the cost of water and fuel stations, engine houses, engines, carriages, fuel, attendants, repairs, renewals, and contingencies, venture to place the daily outlay, per engine in motion, at less than from 40 to 50 dollars exclusive of any tolls.

The supposition allows the engine to be capable of drawing 18 passengers at one time, and no more. Then if it run 100 miles in the day of ten or twelve hours, and carry in each trip on an average two-thirds of a full load, or 12 passengers, which is, perhaps, a sufficient allowance, considering the fluctuations of travel, the cost per passenger at $40 per day will be $3,33 1-3, or per mile 3 1-3 cents each.

Upon a road equally good 4 horses would be made to draw a stage coach carrying 12 passengers 15 miles a day, also at 10 miles an hour: one extra horse, however, for every team of 4 must be reckoned for each 15 miles, or a horse for each three miles, (that is, in each direction of the road, as each team would travel 7½ miles forward and 7½ miles back per day,) say 34 hours for 100 miles in one direction, three drivers would be sufficient, and it might be done with only two. Fifty cents per day will cover all the expense consequent and attendant on each horse, and 100 cents will pay each driver. Daily charge for horses and drivers $20. Add two dollars for wear and tear of coaches, and for all expenses consequent upon them, $1 for agencies, and $1 for contingencies, and the expense with horses will be $24, which, if the average load be 8 persons, will be $3 each, or at the rate of 3 cents per mile.

Comparison with Railways.—A locomotive engine of the same weight as the Steam Carriage, to wit: 6½ tons, with 4 tons on the driving wheels, would have an available adhesion of the ¼ or 1120 lbs. over and above that necessary to propel on a level the engine and tender, weighing 11 tons.

The friction or resistance to the traction on a level railway, with suitable machinery, need not exceed 11 lbs. per ton in curvatures of 1000 feet radius, and it may be reduced to about eight pounds.

At 11 lbs. the engine would be competent to draw after it, on a level, a train of cars, the gross weight of which would be 100 tons, or a train of 28 cars, containing 70 tons of freight. Or, a train of 33 cars containing 600 passengers.

The performance up an ascent of 20 feet per mile, or 1 in 264, after deducting from 1120 lbs. adhesion, 104.5 lbs. the retardation of the engine and tender from curvature and gravity is found to be 52 tons gross, or a train of 15 cars containing 37½ tons of freight—or, a train of 17 cars and 300 passengers.

The average velocity with the freight could be 7½ to 10 miles per hour, and with the passengers 15 miles per hour, or even 20, if desirable.

At 15 miles per hour, the distance run in a day of 10 or 12 hours would be 150 miles. Now if we assume the daily expenses of the motive power and every thing connected with it, (adding also for the wear and tear of the train of passenger cars,) at the liberal sum of $50 for each Locomotive Engine in operation at this velocity, excepting tolls, and suppose the average load at two-thirds, equal 200 passengers, then it would appear that the cost of carrying 200 persons would be 25 cents each for 150 miles, or only 1-6th of a cent per mile each.

If, however, only 100 persons were conveyed each trip, the expenses would be reduced by a less wear and tear of cars, and a less consumption of fuel to, say, $44, and the expense per mile for each person would then be nearly ⅓ of a cent.

When only three cars with 54 persons made the load, the expense would be less than $40; and the cost per mile for each person would then be about ½ a cent.

From all which it appears that the actual cost of the conveyance of passengers on such a railway will be less than with horses, by at least 2½ cents per mile each, and less than by Steam Carriages on a M'Adam road by about 3 cents per mile, each.

Now if we assume a line of railway 350 miles in length, of such grade that a Locomotive Engine will convey with ease a train containing 50 to 100 passengers, and suppose the average number daily in each direction to be only 54, or in both directions 108 passengers, this would make, per annum, 39,420 passengers conveyed 350 miles; then as a less charge could be made on the railway than on the turnpike road, by 3 cents a mile per passenger, the saving on 350 miles would be $10.50 each person, or in the number that passed in a year $413,910, being 6 per cent. interest on about $700,000, or $20,000 per mile for the entire distance. Consequently, admitting the moderate supposition, (at least with regard to the railway,) that the net profits on the transit of commodities should keep either road in repair, the railway would be preferable at an excess of cost in the construction beyond that of the turnpike road of $20,000 per mile, when no more than 54 passengers should pass daily in each direction. Upon the railway, however, the passage would be made in 24 hours, whilst on the turnpike road it would require 36 hours; hence, upon the latter the passenger would consume the time and personal expenses of an additional day: both these could not be reckoned at less than $2, which, for 39,420 passengers, would involve a loss of $78,940 per annum, upon such a route, to the travelling community, nearly equal to the interest of an additional $1,500,000.

If it shall be alleged that the turnpike road could be made shorter between the same termini, it may be answered, that in general it would be necessary to pursue ground affording a profile very nearly as favorable as that for the railway, if indeed the routes should not in a mountainous country be identical, otherwise the performance on the turnpike would be less than the supposition.

Again, if we assume a line of railway 40 miles in length, and suppose 400 passengers daily, (or 200 in each direction,) the passage will be equivalent to 16,000 persons 1 mile per day, and at a saving of 3 cents per mile each, it will yield daily $480, or annually $175,200, being the interest of a capital of about $3,000,000. Hence on such a route, with such an intercourse, the public could afford to spend a greater sum on a railway than on a M'Adam road by $3,000,000.

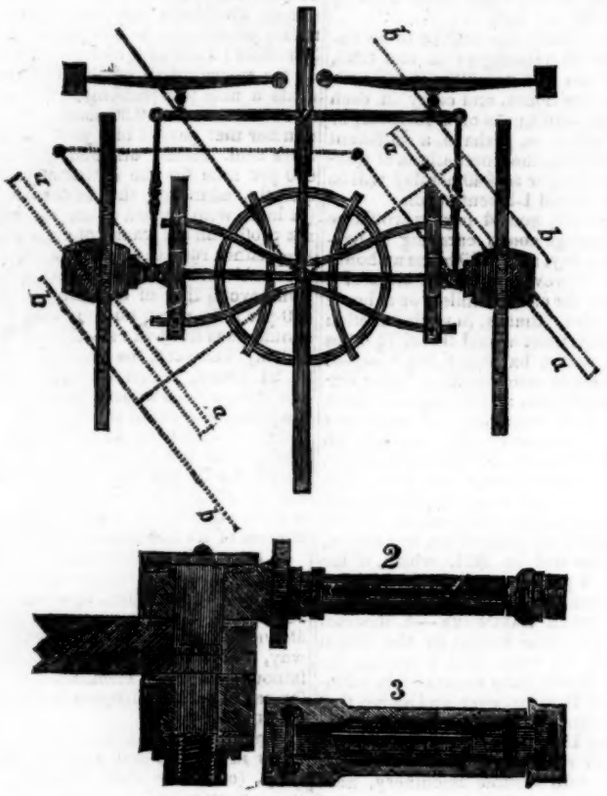
Again, if only 100 persons were to pass daily in each direction, equivalent to 200 passengers for 40 miles, the annual saving in the cost of transit on the railway beyond that on the turnpike road would be equal to the interest of about $1,500,000, and by this sum might the cost of the former exceed that of the latter.

If we should take into view the transit of commodities in addition to that of persons, the preference in favor of the railway would receive further confirmation, whilst in the conveyance of the mail the preference would, if possible, be still more decided.

In the case of the railway, the velocity being greater, there would, as we have shown, be a saving to the passenger in time and money, as his journey would be performed more quickly, with less expense, and at a less price, and for these reasons a great accession to the number of persons travelling by this mode would be realised, and the wealth and rational enjoyment of the community thereby increased.

Ergot or Spurred Rye.—We caution those who are in the habit of using rye for bread, to examine it well before it is ground, to ascertain whether it contains any ergot or spurred kernels; if so, they should be carefully separated, as they are very poisonous, and the smallest possible quantity has a deleterious effect upon the system. When the spurred kernels are separated, they may be reserved to kill flies with, as a sweetened decoction of them is the best preparation for that purpose that we have ever tried.—[Genesee Farmer.]

Some writers have expressed well supported opinions that spurred rye is often the cause of violent diseases prevailing in whole neighborhoods or districts.



[*From the London Mechanics' Magazine.*]

MASON'S PATENT IMPROVEMENTS IN LOCKING THE FORE WHEELS OF FOUR-WHEEL CARRIAGES. *Communicated by the Inventor.*—It has long been acknowledged, that the present mode of locking the fore wheels of four-wheeled carriages from the centre is very unsafe, and many times the cause of serious accidents. This arises from both the fore wheels being fixed or mounted to the same axletree; the consequence is, that when wheels so attached are locked, the fore wheels form little more than three bearings or points of support, from which circumstance four wheel carriages are very liable to be overturned. Another great inconvenience is produced by the fore wheels so attached to the axletree being of necessity made much smaller than the hinder ones, causing thereby a very great increase in the draught; and if such wheels are increased in diameter, it can only be by allowing the body of the carriage to be placed much higher, which makes it both unsafe for use and inelegant in appearance.

In W. Mason's patent improvements on four-wheel carriages, the fore wheels may be made very nearly or quite as large as the hinder ones, thereby reducing the draught in a very considerable degree, and giving greater ease to those who travel in such vehicles, for it must be evident, that the smaller the wheels are, the more likely they are to fall into the inequalities found in the surfaces of roads, and thereby to cause jolting and very unpleasant motion; but in the improved mode herein submitted, these inconveniences are avoided, and the body of the carriage is also hung much lower, and in consequence it is more convenient to enter in and get out of; the appearance in point of elegance, is also much improved.

The principal advantages arising from the improvements herein submitted are as follow:

Firstly, instead of both fore wheels being mounted upon one axletree as usual, each wheel is mounted on an arm, which arm is joined to the end of the fixed axletree, by which means each wheel locks so near its own centre, that a 3 feet 6 inch wheel will only run back one inch and a half when locked to the utmost extent required. Wheels thus mounted can never be placed under the body of the carriage, as they are in the usual manner, when locked from the centre, by which means the carriage is, in many instances, placed on three points of bearing only, from which cause so many accidents occur by the overturning of carriages, when the fore wheels are locked; but in the improved construction, the fore wheels, when locked, never pass under the body, but always, and in every position present four points of support, even when locked to the utmost extent.

The dotted lines *a*, Fig. 1, represent the axletree and wheels, with the new and improved method of locking them. The old method, of turning upon a pin or bolt in its centre, is shown by other dotted lines *b*.

Secondly, by fixing the axletree in the centre, between the spring-bed and the horn-bar, the distance between the wheels is reduced, without diminishing the length of the upper carriage; by which arrangement the body will hang in a better and more elegant position.

Thirdly, by increasing the height of the fore wheels, and making them very nearly the diameter of the hinder ones, the unpleasant jolting that is produced by the present small fore-wheels will be avoided; it being a well established fact that the larger any carriage wheel can be made, the less will it be liable to fall into the inequalities of the roads over which it passes, and from which cause so much unpleasant motion is produced. To this advantage may be likewise added the great reduction in the draught; which with wheels so nearly equal in diameter, will be little more than half what it is in the old construction, while the beauty of a carriage constructed in this improved manner will be greatly increased; small fore wheels at all times producing a vacant appearance when viewed externally.

Fourthly, by fixing the swinging bar on joints, the draught of the horses are equalized in any position; and in turning, each is always kept tight.

Fifthly, these improvements can be applied to any four wheel carriage without altering the hind part.

New contrivances for oiling the wheels and joints are also introduced, by which means carriages will run many thousand miles without oiling. These will be sufficiently understood by references to Figs. 2 and 3.

Fig. 2 is an elevation and section of one of the improved arms and joints by which it is connected with the axletree.

Fig. 3, section of the improved box. Both the arm and the joints have cavities in their centres to contain oil, which passes through a side hole in each, to lubricate the box, the arm, and the joint, and one oiling will last for years.

W. M.

The following able, yet not more able than true, exposition of the advantages of Railroads, is from the *Edinburgh Review*. It is but a plain statement of facts, yet they are so *clearly* and *forcibly* stated, that they can hardly fail to convince those who still doubt the truths therein set forth. We should be gratified to see them extensively copied.

"RAILWAYS.—Railways are in progress between the points of greatest intercourse in the United Kingdoms, and travelling steam engines are in preparation in every quarter for the common turnpike roads; the practicability and utility of that application of the steam engine having not only been established by experiment to the satisfaction of their projectors, but proved before the legislature so conclusively, as to be taken for the foundation of parliamentary enactments.

"The important commercial and political effects attending such increased facility and speed in the transport of persons and goods, are too obvious to require any very extended notice here. A part of the price (and in many cases a considerable part) of every article of necessity or luxury, consists of the cost of transporting it from the producer to the consumer; and consequently every abatement or saving in this cost must produce a corresponding reduction in the price of every article transported; that is to say, of every thing which is necessary for the subsistence of the poor, or for the enjoyment of the rich, of every comfort, and of every luxury of life. The benefit of this will extend, not to the consumer only, but to the producer; by lowering the expense of transport of the producer, whether of the soil or of the loom, a less quantity of that produce will be spent in bringing the remainder to market, and consequently a greater surplus will reward the labor of the producer. The benefit of this will be felt even more by the agriculturist than by the manufacturer; because the proportional cost of transport of the produce of the soil is greater than that of the manufactures. If 200 quarters of corn be necessary to raise 400, and 100 more be required to bring the 400 to market, then the net surplus will be 100. But if by the use of steam carriages the same quantity can be brought to market with an expenditure of 50 quarters, then the net surplus will be increased from 100 to 150 quarters; and either the profit of the farmer or the rent of the landlord must be increased by the same amount.

"But the agriculturist would not merely be benefitted by an increased return from the soil already under cultivation. Any reduction in the cost of transporting the produce to market would call into cultivation tracts of inferior fertility, the returns from which would not at present repay the cost of cultivation and transport. Thus land would become productive which is now waste, and an effect would be produced equivalent to adding so much fertile soil to the present extent of the country. It is well known that land of a given degree of fertility will yield increased produce by the increased application of capital and labor. By a reduction in the cost of transport, a saving will be made which may enable the agriculturist to apply to tracts already under cultivation

the capital thus saved, and thereby increase their actual production. Not only, therefore, would such an effect be attended with an increased extent of cultivated land, but also with an increased degree of cultivation in that which is already productive.

"It has been said that in Great Britain there are above a million of horses, engaged in various ways, in the transport of passengers and goods, and that to support each horse requires as land as much would upon an average support eight men. If this quantity of animal power were displaced by steam engines, and the means of transport drawn from the bowels of the earth, instead of being raised upon its surface, then, supposing the above calculation correct, as much land would become available for the support of human beings as would suffice for an additional population of eight millions, or, what amounts to the same, would increase the means of support of the present population by about one-third of the present available means. The land which now supports horses for transport, would then support men, or produce corn for food.

"The objection that a quantity of land exists in the country capable of supporting horses alone, and that such land would be thrown out of cultivation, scarcely deserves notice here. The existence of any considerable quantity of such land is extremely doubtful. What is the soil that will feed a horse, and not feed oxen or sheep, or produce food for man? But even if it be admitted that there exists in the country a small portion of such land, that portion cannot exceed, nor indeed equal, what would be sufficient for the number of horses which must, after all, continue to be employed for the purpose of pleasure, and in a variety of cases where steam must necessarily be inapplicable. It is to be remembered also, that the displacing of horses in one extensive occupation, by diminishing their price, must necessarily increase the demand for them in others.

"The reduction in the cost of transport of manufactured articles, lowering their price in the market, will stimulate their consumption. This observation applies of course not only to home but to foreign markets. In the latter we already, in many branches of manufacture, command a monopoly. The reduced price which we shall attain by cheapness and facility of transport, will still further extend and increase our advantages. The necessary consequences will be an increased demand for a manufacturing population; and this increased population again re-acting on the agricultural interests, will form an increased market for that species of produce. So interwoven and complicated are the fibres which form the texture of the highly-civilized and artificial community in which we live, that an effect produced on any one point is instantly transmitted to the most remote and apparently unconnected parts of the system.

"The two advantages of increased cheapness and speed, besides extending the amount of existing traffic, call into existence new objects of commercial intercourse. For the same reason that the reduced cost of transport, as we have shown, calls new soils into cultivation, it also calls into existence new markets for manufactured and agricultural produce. The great speed of transit, which has been proved to be practicable, must open a commerce between distant points in various articles, the nature of which does not permit them to be preserved so as to be fit for use beyond a certain time. Such are, for example, many species of vegetable and animal food, which at present are confined to markets at a very limited distance from the grower or feeder. The truth of this observation is manifested by the effects which have followed the intercourse by steam on the Irish Channel. The western towns of England have become markets for a prodigious quantity of Irish produce, which it had been previously impossible to export. If animal food be transported alive from the grower to the consumer, the distance of the market is limited by the power of the animal to travel, and the cost of its support on the road. It is only particular species of cattle which bear to be carried to market on common roads and by horse carriages. But the peculiar nature of a railway, the magnitude and weight of the loads which may be transported on it, and the prodigious speed which may be attained, render the transport of cattle of every species, to almost any distance, both easy and cheap. In process of time, when the railway system becomes extended, the metropolis and populous towns will therefore become markets, not as at present to districts within limited distances of them, but to the whole country.

"The moral and political consequences of so great a change in the powers of transition of persons and intelligence from place to place, are not easily calculated. The concentration of mind and exertion which a great metropolis always exhibits, will be extended in a considerable degree to the whole realm. The same effect will be produced as if all distances were lessened in the proportion in which the speed and cheapness of transit are increased.—Towns, at present removed some stages from the metropolis, will become its suburbs; others, now at a day's journey, will be removed to its immediate vicinity; business will be carried on with as much ease between them and the metropolis, as it is now between distant points of the metropolis itself. The ordinary habitations of various classes of citizens engaged in active business in the towns, will be at what are now regarded considerable distances from the places of their occupation. The salubrity of cities will thus be increased by superseding the necessity of heaping the inhabitants together, story upon story, in a confined space; and by enabling the town population to spread itself over a large extent of surface, without incurring the inconvenience of distance.—Let those who discard speculations like these as wild and improbable, recur to the state of public opinion at no remote period on the subject of steam navigation. Within the memory of persons who have not yet passed the meridian of life, the possibility of traversing by the steam engine the channels and seas that surround and intersect these islands, was regarded as the dream of enthusiasts. Nautical men and men of science rejected such speculations with equal incredulity, and with little less than scorn for the understanding of those who could for a moment entertain them.* Yet we have witnessed steam engines traversing, not these channels and seas alone, but sweeping the face of the waters round every coast in Europe, and even ploughing the great oceans of the world. If steam be not used as the only means of connecting the most distant habitable points of our planet, it is not because it is inadequate to the accomplishment of that end, but because local and accidental causes limit the supply of that material from which at the present moment it derives its powers."

[*From the Journal of Health.*]

Saccharine Aliment.—Dr. Prout considers the principal alimentary substances as reduceable to three great classes, the *Saccharine*, the *Oily*, and the *Albuminous*. The first of these, with certain exceptions, includes the substances in which according to Gay-Lussac and Thenard, the oxygen and hydrogen are in the same proportion as they are in water. They are principally derived from the vegetable kingdom, and being at the same time *alimentary*, Dr. Prout considers the terms *Saccharine principle* and *Vegetable aliment* as synonymous. The following, showing some of the results of Dr. Prout's experiments with various substances, great care being taken in every case to obtain these perfectly pure, will interest many of our readers, as showing the comparative nutritive properties of each.

Sugar.	*Carbon.*	*Water.*
Pure Sugar Candy contains	42.85 pr. ct.	57.15
Impure Sugar Candy	41.15 to 42.15	58.50 to 57.50
East India Sugar Candy	41.90	58.10
English Refined Sugar	41.50 to 42.50	58.50 to 57.50
East India Refined Sugar	42.20	57.80
Maple Sugar	42.10	57.90
Beet-Root Sugar	42.10	57.90
East India moist Sugar	40.88	59.12
Sugar of Narbonne honey	36.36	63.63
Sugar from Starch	36.20	63.80
Starch.		
Fine wheat Starch	37.50	62.50
The same dried	42.80	57.20
Do. do. highly dried	44.	56.
Arrow Root	36.40	63.60
The same dried	42.80	57.20
Do. do. highly dried	44.40	55.60

Port Wine.—The eulogists of pure Port Wine may be a little startled at the following official statement of the entire amount of wine exported from Oporto:

In 1818, the Factory wine exported from Oporto amounted to 32,843 pipes; of this quantity 32,465 were consumed by Great Britain and her dependencies, leaving 378 pipes to supply all the rest of the world with pure port wine.

In 1819, the total quantity exported was 19,502 pipes, of which nearly the whole was for the supply of Great Britain.

In 1820, the quantity exported was 23,740 pipes; almost the whole went to supply Great Britain.

In 1821, 24,641 pipes; nearly the whole to Great Britain.

In 1822, 27,758 pipes; of which 27,470 were consumed by the English, leaving 288 pipes for the supply of all other nations.

In 1823, 23,578 pipes were exported; of which 23,208 were for the supply of England, leaving 370 for other nations.

In 1824, 19,164 pipes were the number exported, the same proportion being consumed by Great Britain.

In 1825, 40,524 pipes exported, of which 40,277 were for the supply of Great Britain, and 247 for other nations.

In 1826, 18,604 pipes exported; 18,310 to Great Britain, and the remaining 314 to other countries.

Port Wine of the Shops—The following is stated on unquestionable authority to be the composition, detected by analysis, of a bottle of the ordinary port wine of the shops. Spirits of wine, three ounces; cider, fourteen ounces; sugar, one and a half ounce; alum, two scruples; tartaric acid, one scruple; strong decoction of logwood, four ounces.

Consumption of Wine in France.—In 1821, the quantity of French wines retailed in France, and of course chiefly consumed by the poorer classes, amounted to more than 335,000,000 gallons. In 1826, it exceeded 400,000,000 gallons. The quantity sold wholesale, and consequently consumed by the families of the opulent, or at least those in easy circumstances, amounted in 1826 only to 69,314,650 gallons; in 1828, to 136,869,438 gallons.

Consumption of French Wines by Foreign Nations.—According to M. Paguirre, England uses less of the French wines than almost any other nation, if we except Sweden. In five years, 6,681 tons of French wines were admitted into England. Hamburg alone takes about eight times, and Holland upon an average twelve times as much.

Loss of Weight in Meat during Cooking.—Four pounds of beef lost by boiling one pound, the same quantity lost by roasting one pound five ounces; the same quantity lost in baking one pound three ounces. Four pounds of mutton lost in boiling fourteen ounces; the same quantity by roasting lost one pound six ounces; by baking the same quantity lost one pound four ounces.

Consumption of Beef in France.—According to M. Lullin de Chateauvieux, it appears that the consumption of *Beef* in France, in proportion to the population, is only one-sixth of what it is in England, notwithstanding that during the year 1826 no fewer than 36,518 oxen and cows were imported from foreign countries. During the same period the importation of sheep and lambs amounted to 200,000. According to

M. Dupin, there is consumed in England three times as much meat, milk and cheese, as in France.

LIME AS A MANURE.—Mr. John Wells, in the New-England Farmer, gives the following as the experience of the benefits of lime:

From the frequent perusal of the benefits derived from lime in its application to soil in Europe, I have been induced for more than a score of years, successively, to make use of it for agricultural purposes to the extent of more than one hundred casks annually.

One of my first experiments arose from a desire to give a top-dressing to a piece of land, which it was otherwise inconvenient to do. The soil was a heavy black loam. Having a quantity of black earth from a trench, (or top stratum,) I procured a quantity of lime. A bottom of four or five buck loads of earth was first placed; then a couple of casks of lime were spread thereon; then earth and lime again, till my materials were used, or the quantity needed was had at the rate of eight or ten casks to the acre. Thus a cask being supposed to produce about five bushels of slacked lime, the cost of which, if the casks are swelled and the lime partly slacked, is eight to ten cents a bushel. This is the most moderate application in Europe, and the cost is about the same.

This mixture after lying twelve or fourteen days was shovelled over, and after some days being found fine and well mixed was spread from the cart on the ground. To my *surprise* I found the effect produced to be equal to what is usual from common compost manure!

I had a piece of ground of about four acres, of rather light soil, which gave promise of a very small crop of grass. Being without the means of obtaining manure, as I had a quantity of earth of the top stratum, taken up on building a wall, I forthwith procured a quantity of lime and mixed it in the manner before mentioned. About the middle of June I had the grass mowed and the land ploughed. The lime compost was then spread and lightly harrowed in. An early sort of yellow corn, which when ripe husked itself, was procured. And my neighbors, who knew the process, were, in the fall of the year, much surprised by the stout ears of golden grain thus unfolded to view!!!

INSECTS IN PEAS.—From an Address before the Massachusetts Horticultural Society, by T. W. Harris, M. D., we extract the following:

The pea is universally esteemed one of the most palatable of our vegetables. At its first appearance in the markets it commands a high price; and its first appearance on the table is not only an object of pride to the gardener, but of pleasure to the partaker. Few, however, while indulging in the luxury of early peas, are aware how many insects they unconsciously consume. When the pods are carefully examined, small, discolored spots may be seen within them, each one corresponding to a similar spot on the opposite pea. If this spot in the pea be opened, a minute, whitish grub or maggot will be discovered. It is the insect in its larva form, which lives upon the marrow of the pea, and arrives at its full size by the time that the pea becomes dry. It then bores a round hole quite to the hull, which, however, is left untouched, as is also the germ of the future sprout. In this hole the insect passes the pupa state, and survives the winter; at the expiration of which, its last change being completed, it has only to gnaw through the thin hull, and make its exit, which frequently is not accomplished before the peas are committed to the ground for an early crop. Peas, thus affected, are denominated *buggy* by seedsmen and gardeners: and the little insects so often seen within them in the spring, are incorrectly called *bugs*, a term of reproach indiscriminately applied to many kinds of insects which have no resemblance to each other in appearance and habits. The pea, *Bruchus Pisi*, for such is its correct name, is a small beetle, a native of this continent, having been unknown in Europe before the discovery of America. Early in the spring, while the pods are young and tender, and the peas are just beginning to swell, it makes small perforations in the epidermis or thin skin of the pod, and deposits in each a minute egg. These eggs are always placed opposite to the peas, and the grubs, when hatched, soon penetrate the pod and bury themselves in the peas by holes so fine that they are hardly perceptible, and are soon closed. Sometimes every pea in a pod will be found to be thus inhabited; and the injury done by the pea *Bruchus* has, in former times, been so great and universal as nearly to put an end to the cultivation of this vegetable. That it should prefer the prolific exotic pea to our indigenous, but less productive pulse, is not a matter of surprise, analogous facts being of common occurrence; but that for so many years a rational method for checking its ravages should not have been practised is somewhat remarkable. An exceedingly simple one is recommended by Deane, but to be successful should be universally adopted. It consists merely in keeping seed peas in tight vessels over one year before planting them. Latreille recommends submitting them to the heat of water at 67 degrees of Fahrenheit, by which the same results might be obtained; and if this was done just before the peas were to be put into the ground, they would then be in a state for immediate planting. The Baltimore Oriole, or hang-bird, is one of the natural enemies of the Bruchus, whose larvæ it detects, picks from the green peas, and devours. How wonderful is the instinct of this bird, which, untaught by experience, can detect the lurking culprit within the envelope of the pod and pea: and how much more wonderful that of the insect; for, as the welfare of its future progeny depends upon the succession of peas the ensuing season, the rostellum or sprout of the pea is never injured by the larva, and consequently the pulse will germinate, though deprived of a third of its substance.

GOV. MARCY—AGRICULTURE.—We take pleasure in laying before our readers the following testimony of Gov. Marcy, in favor of scientific agriculture, taken from his Message to the Legislature of this State:

Agriculture, manufactures, and commerce, are the three great departments of human industry. They furnish to all the means of subsistence, and the comforts of life, and constitute the only true sources of national wealth and prosperity. Legislators can never withhold from them a fostering care, without disregarding one of the most important and solemn duties which they owe to their constituents.

The power to regulate commerce is delegated to the General Government, and consequently the sphere of State legislation with regard to this subject is very much circumscribed; it scarcely extends beyond the enactment of laws for the inspection of some of our principal domestic products, and the multiplication of facilities for the exchange and transportation of articles of commerce.

Manufactures are a branch of industry eminently connected with our prosperity, and at this time an object of peculiar solicitude to a large portion of our constituents. The principle of giving encouragement and protection to them, was recognized in one of the first acts of Congress passed after the adoption of the Constitution of the United States. The representatives of all the states in the councils of the nation have, at one period or another, given their sanction to this principle, and down to the present period it has entered into and influenced the policy of the Federal Government. The extent to which it should be carried has often been in dispute; but the rightful authority to encourage and protect manufactures, either directly or indirectly, has not, until within a recent period, been seriously questioned by any considerable portion of the people of the United States. I am persuaded there is nothing in the operation of this principle, in a course of wise and prudent legislation, that conflicts with the objects for which our federal compact was formed, or that imposes unequal and oppressive burdens on the people of one section of the country, as the necessary consequence of the benefits it confers upon others. If this principle has been misapplied, and injurious effects have thereby resulted, the proper remedy for them does not require an abandonment of it.

From the consideration of these important subjects, I pass to one of greater and more general interest, lying more directly within the range of our legislative action, and demanding from us a particular attention. Agriculture was undoubtedly the primitive pursuit of men in a civilized state of society, and seems to be indicated to them by heaven as their best employment. Vigor of body and purity of mind are eminently enjoyed by the husbandman. Without meaning to disparage any class of men, or to deny a due measure of public virtue and usefulness to all, history and experience warrant the assertion, that the cultivators of the soil have ever been among the first to cherish, and the last to abandon, free institutions. It is not, however, for this reason that agriculture presents peculiar claims for our guardianship. It not only furnishes occupation to a much greater portion of our citizens than any other department of labor, but it supplies the materials for all others. It must be regarded as a matter of some surprise, that an employment in which so great a number of the human family are directly engaged, to which all look for their daily bread, and upon which commerce, manufactures, and the mechanic arts—indeed all the various pursuits of mankind—so necessarily depend, should not have risen to a still higher consideration than it has yet attained, and received from those entrusted with the power of legislation more liberal aids.

The numerous agricultural societies organized in the several counties of this state in consequence of our legislation flourished for a season, then languished, and are now generally dissolved. The interest of agriculture was, to a considerable extent, promoted by those societies. The contributions from the public

treasury, distributed principally in premiums, gave a sudden impulse to agricultural industry, and induced many laudable efforts among farmers, not only to excel in their productions but to introduce valuable improvements in husbandry: yet it has been questioned whether the benefits thus obtained were of such an extensive and abiding character as might have been realized by a different application of the funds derived from the government. Agriculture is a science as well as an art; and both must be systematically cultivated and widely disseminated before it will attain a high degree of improvement. The general intelligence and individual enterprise of those devoted to this pursuit have carried the art so far, perhaps, as could be reasonably expected without a better knowledge of the sciences connected with it. With a salubrious climate and fertile soil; with extensive regions but partially brought under the power of cultivation; with rising manufactures and a flourishing commerce, demanding the surplus products of husbandry; with a population full of enterprise, and distinguished for native skill and practical talent,—we may reasonably expect great advantages from the cultivation and diffusion of the sciences connected with this art. This subject appears to me to be in every respect worthy of your attention, and to merit your liberal encouragemont.

THE FARMER OF LAGRANGE.—Consistent as have been his principles, and constant as has been his devotion to the great principles of freedom and of universal philanthrophy, the veteran *Lafayette* no where displays his character in a more amiable and captivating light, than in his *favorite* occupation *as a farmer*.

It is known that during his triumphant tour in America, one that caused the most spontaneous, universal and unadulterated flow of national gratitude that *was ever exhibited*, no invitation was more *cordially* accepted than the one from our Agricultural Society, to *distribute its premiums*,—and those who won what is denominated, *par excellence*, the "Lafayette premium," gave it suitable inscription, and still show it as the proudest trophy of their agricultural career. What would tempt the owner of Hayfields, for instance, to part with his noble tankard "*presented by the hands of Lafayette for the best cultivated farm.*" We wish we could recollect the spontaneous (and always happy) *outpourings* of Gov. Barbour, on receiving it filled with his native *mint sling*, and responding at one of our agricultural dinners to the eloquent t-o-n-e-s, (we wish it were as easy to get at the n-o-t-e-s,) of the *cashier* of the ——— Society. But whilst our zeal has died away, leaving an undivided surplus in the treasury, the venerable Farmer of Lagrange is as much devoted as the youngest agriculturist, to his sheep, his hogs, and his cattle, and as proudly boasts of his *premiums*; always attaching double value to those which are won for any thing that has in it American blood. Judge by the following extract from a letter from him to Mr. Skinner, formerly Editor of the American Farmer, of the enthusiasm and noble simplicity of the Farmer of Lagrange, —he to whom the King of the French, in the flush of gratitude, acknowledged he owed his throne, and promised to surround it with "Republican Institutions":—

"LAGRANGE, October 8, 1832.

"For the state of political affairs I refer you to the papers from this side of the Atlantic. We had lately a departmental *cattle show* in presence of the Prefect, and a deputation from the Paris Agricultural Society to the Society we have formed at Rosay. A jury of twenty members have been selected from the several parts of the department of Seine au Marne.—Of the four prizes awarded to me, there was a first one to a boar, coming from your present of a fine breed of hogs; and another first prize to my merino females; two others for a cow, issued from Mr. Patterson's Holkham breed, (Devons,) which has increased in size on my farm; and to a ram, rather a small one, of excellent wool. You see that America had a distinguished part in the show; my wool is indisputably the finest in this department; but farmers set a value by the size of the animals, too much so perhaps, as the forms and qualities are the important points. Yet you see justice has been done to my flock. No race of hogs that I know of are equal to your black breed."

In a letter of subsequent date, by ten days, the old General displays again his American partialities,—"Would it," says he, "my dear friend, be possible, without giving too much trouble, to procure for me some more wild turkeys, some partridges, some deers and terrapins; this is a great deal, indeed. But I have but one American deer, *Americanus cervus*, and am afraid to lose him. My full blooded turkey wild cocks are living, but some of their kind, male and females, would do. Your hogs are flourishing, and Mr. Patterson's bull, (Devon,) that he gave me, produces larger than he was. Mr. Morris' steam machine works admirably." This was a costly and highly finished steam apparatus, presented to the General in the most delicate manner, by our fellow citizen, J. B. Morris, Esquire. On taking out the old veteran to see the Hon. R. Smith's Orange Farm, with its hundred cows, its extensive and well arranged dairy, its apparatus for preparing and steaming their food; the General inquired, "whether it would be practicable to get a *model* of the steam engine." Mr. Morris replying, "that he had no doubt of it," caused a very perfect machine, upon the largest scale, to be finished in the highest style of workmanship and efficiency, and sent it out at his own expense to the General.—[American Farmer.]

STUDIOUS FARMERS AND MECHANICS.—It is the impression of many farmers that an attention to books is calculated to interfere with their pursuits. The reverse is the case, if the taste is for that kind of reading which is connected with their pursuits—even general literature and science are of practical utility to every one—something applicable to our business is continually occurring. The following, from an address before a Society of Mechanics, by the Hon. ED. EVERETT, exhibits a beautiful and enviable picture of industry, refinement and happiness:

"I have the pleasure to be acquainted with a person who was brought up at the trade of a leather-dresser, and has all his life worked and still works at this business—he has devoted his leisure hours, and a portion of his honorable earnings, to the cultivation of useful and elegant learning; under the same roof which covers his store and work-shop, he has the most excellent library of English books with which I am acquainted; the books have been selected with a good judgment, which would do credit to the most accomplished scholar, and have been imported from England by himself—what is more important than books, the proprietor is well acquainted with their contents; among them are several volumes of the most costly and magnificent engravings. Connected with his library is an exceedingly interesting series of paintings in water colors—which a fortunate accident placed in his possession, and several valuable pictures purchased by himself. The whole forms a treasure of taste and knowledge, not surpassed, if equalled, by any thing of its kind in the country."

RICE MACHINE.—We mentioned a few weeks since, says the Northampton, (Mass.) Courier, the invention of a machine for cleaning rice from the hull, by some ingenious mechanics of this town. At that time the trial of its capacities had hardly been tested fairly, as it was not perfected in all its parts nor its exact powers graduated. Within a few days, however, a machine has been completed, and all the improvements which experience had suggested been done, and a trial of its powers made in the presence of a large number of our citizens. It performed its task to the admiration of all, and goes by horse, steam, water, or any other power. It works rapidly, cleans the rice in the best possible manner, without, as has been the leading difficulty with all other machines, breaking up the grain. The Patent Office at Washington contains a number of inventions for this purpose, and the premium of $50,000 has often been claimed, but they all, upon experiment, fail of accomplishing the great object successfully. Gentlemen who are familiar with the cultivation of rice, think this machine cannot be otherwise than successful, conferring a benefit upon rice plantations almost incalculable.

STRAWBERRIES.—Is it worth noticing that I gathered yesterday from the vines of Mr. T. B. Allen, of York County, half-grown strawberries and blossoms? They are now in my house. I am credibly informed that his vines have not been without fruit and bloom since May, and they are certainly the finest strawberries I have ever seen—some of them culled last summer, being four inches in circumference. *J. F., James City, Va., Nov. 7, 1832.*—[American Farmer.]

AUBURN PRISON.—The annual report of the inspectors of this prison was made to the Senate yesterday. The total amount of the earnings of the convicts for the year, is stated at $41,833 47; and the expenditures for the general support of the prison, at $38,305 31; leaving a balance in favor of the prison of $3,528 16. In addition to this balance, the inspectors state that the prison should be credited with the expense of keeping, feeding, and clothing, about 100 convicts who have been employed since the 1st of June last, in the erection of the new cells in the south wing, whose labor has not been taken into the account of profit to the prison; and also the erection of a workshop 100 feet by 40. The number of convicts in the prison, at the commencement of the year, was 646; received during the year, 192; discharged by expiration of sentence, 115; by pardon, 27—one by order of the Supreme Court; and 27 by death; leaving at the prison on the 1st inst. 683. Of the number received during the year, 60 were from the prison at Sing-Sing. The 200 cells directed by an act of the last session to be erected in the south wing of the prison are completed, and were occupied by convicts on the 1st inst.—[Alb. Argus.]

BEET-ROOT SUGAR.—The same necessity—that proverbial "mother of invention"—that led our ancestors, during the Revolutionary struggle, to extract molasses from pumpkins and corn-stalks, taught the French, after having lost their colonies during the late war, to manufacture sugar from the beet. Indeed, during the latter years of that war, nearly the whole consumption of France was furnished from that source. The peace of 1816, and the consequent influx of foreign sugars under a temporary relaxation of the protective duties which the government had extended to the domestic article, caused the manufacture, for a while, to languish and be neglected. Shortly, however, the government resumed, efficiently, the protective policy; the manufacture of sugar from the beet-root was resumed with renewed energy, and rapidly extended; it is now firmly and profitably established; and although her annual consumption of sugar is estimated at eighty millions of kilogrammes, yet France will shortly produce within her own bounds, nearly, if not quite all the sugar she consumes.

We learn these particulars, with much other valuable information in relation to this important branch of French domestic manufacture, from a curious and valuable article upon the subject, copied by the *Family Lyceum* from the "British Quarterly Journal of Agriculture," and which, with our earliest convenience, we intend laying before our readers. We have noticed it now, for the purpose of contrasting the policy of France, in relation to this manufacture, and its immensely beneficial national consequences, with the course which certain wise theorists and would-be patriots would fain have our government pursue, in relation to the Domestic Industry of this country.

Sugar---no matter how---had become one of the necessaries of life. Up to the wars of the Revolution, France was supplied with it from her own colonies. This supply failed; and a new one was sought and found at home. But the war ceased, and France again has sugar-growing colonies, whence her demand may be supplied; or she may buy the article from her neighbors, the English or the Dutch. Does she do either? No. She has learned her lesson too dearly, so soon and so easily to forget it. She has learned that these sources are precarious---depending on the questions of peace or war---and that they render her dependent. She has learned, moreover, that she has means and sources that are not precarious, and that are independent: and she has wisely determined to cultivate and to cherish them. Already is she reaping the reward of her wisdom; having increased not only her independence, but her wealth and her comforts, by this policy of *protecting her own industry and her own productions*. How much better, more satisfactory, and more conducive, is one such example, one such lesson drawn from the school of experience, than all the abstract reasonings and fine spun theories of the Free-Trade political economists?

PRUNING.---In pruning young plum and cherry trees never cut away the spurs, as these produce the fruit. With peaches reverse the order, and cut away old wood, and and reserve the most thrifty shoots, as these produce the finest sized peaches. Unlike many other kinds of fruit, the flower buds will be found upon strong shoots of the preceding year's growth. In many instances such shoots may be shortened to advantage, and after the curculio has ceased to puncture them, the wounded ones should be picked, and others thinned where too many remain.---[Gen. Far.]

EAST INDIA FLOUR.—A new article of commerce, namely, *East India Flour*, is coming extensively into use, for the making of size and starch; it is chiefly imported by the Calcutta Flour Mills Company, and is found to answer better than American flour, which has hitherto been considered the best for this purpose. The manufacture of *soda* from common salt, for the purposes of bleaching and making soap, is now carried on to a considerable extent in Liverpool; and this article is likely to compete with, if not to supersede, pot and pearl ashes, for the above mentioned purposes, as it can be sold for about £20 a ton. This new manufacture will be beneficial to England, though injurious to the Canadas, whence we now obtain so large a quantity of ashes.—[Tait's Edinburg Mag.]

The preceding states a fact of much interest to the grain growers of the United States. Except in years of scarcity, a part of our exports of flour to England was for the purpose of making size, or paste and starch—and *sour* flour had a fair market in that country when *sweet* could not be sold at all, because of the prohibitory duty upon it; the first, as a raw *material*, being moderately taxed. The amount of the consumption of flour for these purposes may be partially apprehended from the fact, that the cotton manufacture of the United States only requires 2,070,000 lbs. of starch and 18,500 bbls. of flour—together equal to about 30,000 bbls. of flour. Perhaps from 80 to 100,000 barrels of flour are used in the United States for sizeing and in paste and starch; or an amount equal to the whole export to the British West Indies in the last year, about the "loss" of which trade a great deal would be said.—[Niles's Register.]

CURRANTS AND GOOSEBERRIES.—The common Currant and Gooseberry, so essential to cookery and so prolific at the north, are not seen in these parts. The shrubs have been introduced, but do not bear, as far as we are informed. These have generally been brought from New England. Probably were cuttings or roots procured further south, they might succeed. We have eaten gooseberry tarts in Washington City—and are informed that in Virginia, both the currant and gooseberry succeed admirably. We should be happy to see these valuable fruits naturalized in our climate.—[Southern Planter.]

VALUE OF SCIENCE TO THE PRACTICAL FARMER.—We have no hesitation in asserting, that we have invariably found the farms of those who studied Botany, Vegetable Chemistry, and the other sciences connected with agriculture, to be better arranged, better conducted, and consequently more productive, than those on which the operations were performed by individuals who practiced the art without any knowledge of its theory—every performance being guided solely by former practice—unaided by general laws or just principles. Without pretending to any superior tact in discrimination, we have little hesitation in asserting that we could, at a very superficial view, distinguish whether the farm was occupied by a scientific practitioner, or by one who was solely guided by former practice and actual observations. So decidedly conspicuous is the effect of a well regulated and organized system of operation. We could particularize many instances corroborative of our assertions, but for the present we confine our observations to the objects in contemplation—a general diffusion of the arts and sciences as connected with agriculture, and a just estimation of their value to the farmer; and surely but little force of argument is required to enforce and establish its importance. A general knowledge of science is not of more importance to any class of men than to the agriculturist. It constitutes the very essence of farming, and enables the scientific operator to act with certainty, when the mere routine practitioner would doubt, hesitate, and more than probably fail in his desired object. —[Gen. Farmer.]

THE BUTTER TREE.—This tree, which the Landers found abundant in the interior of Africa, yields a very savory and nutritious kind of vegetable marrow. The tree is said to resemble the oak. The nut is enveloped in an agreeably pulpy substance, and the kernel is about as large as our chestnut. This is exposed in the sun to dry; after which it is pounded very fine and boiled; the oily particles float, and when cool they are skimmed off and made into little cakes fit for immediate use.

PUMPKIN PIES.—Take any given pumpkin, and after dividing it horizontally and ridding it of its seeds, and superfluous contents, place the two parts together upon a dish or pan in an oven or stove, with a slow fire, without the addition of water; let it remain therein for two hours, or until sufficiently baked: after which remove it, and the *subject matter* of the pumpkin may be readily separated from the skin, and will be found to be in the precise condition for pies, needing only the sugar and spices, which can be added according to the common rules of taste.

This, for simplicity, will not only save much labor, but exclude the milk and eggs as useless articles: the pies according to the above rule not only being better without them, but may be made with only one-fourth of the trouble attendant on the ordinary mode.—[N. E. Farmer.]

THE WEATHER AT MONTREAL.—The weather, says a Montreal paper of Jan. 14, has greatly changed recently: we have had a heavy fall of snow, to the depth of two feet, and the cold has been greater than any we have experienced this winter. We expect the immediate closing of the river opposite our city, and the plentiful supply of the markets with country produce. The season hitherto has been open, and as our poor have been plentifully supplied with work, our city and its neighbourhood have been the scene of comparative comfort. We have had but one drawback, the typhus fever, which we hear is greatly reduced in its malignancy, and its victims are fewer.

WALNUTS.—A cottager at Warson, near Mansfield, has gathered from a walnut tree in his possession sixty thousand ripe walnuts, allowing, as they are usually sold, six score to the hundred; part of which he sold at one shilling per hundred, and the remainder at tenpence; therefore, calculating the whole sixty thousand to be sold at tenpence only, the tree produced, at that rate, twenty-five pounds. It must also be understood that, in the pickling season, when green, some thou-

sands were also gathered, which are not reckoned in the above calculation.—[Doncaster Gazette.]

ANTIQUITY OF AN OAK.—An oak was recently felled, says a Pennsylvania paper, on the north side of Muncy Mountain, Lycoming county, Pennsylvania, which was found upon counting the growths, to be 460 years old, and to have been marked by a cutting instrument 390 years ago, the age of the tree being about 450 years. The instrument used in making these marks was probably a hard stone, carved or ground into a shape, bearing some resemblance to our axe, but much smaller in size. It is added that the marks are of such a nature as to leave no doubt that they were produced by such a cause.

BEST PREPARATION OF BLACK LEAD FOR CLEANING STOVES, &c.—Mix powder of black lead with a little common gin, or the dregs of red port wine, and lay it on the stove with a piece of linen rag; then with a clean, dry and close, but not too hard, brush, dipped in dried black lead, rub it till of a beautiful brightness. This will be found to produce a much finer and richer black varnish on the cast iron, than either boiling the black lead with small beer and soap, or mixing it with the white of an egg, &c. which are the methods commonly practiced.—*Dr. Cooper's Ed. of American Encyclopedia.*

[STILL BETTER.—Mix powdered black lead in *water*, and apply it with a plentiful supply of brisk "*elbow grease*,"—that is all that is necessary. The whole secret of giving stoves a high polish consists in applying the lead and water with a soft brush, and brushing it briskly and perseveringly, till perfectly dry. If the mixture dries before it is brushed as above, you cannot polish it.—*Ed. American Farmer.*]

BUFFALO BERRY AND ARKANSAS PLUM.—*Friend Smith:* Last Spring we received from Col. John O'Fallon, of St. Louis, a package containing a quantity of plants of the Buffalo berry, Arkansas plum, and sand cherry, native productions of Missouri, accompanied by his letter, describing those fruits as valuable for the dessert and ornament; for which favor we desire to make our acknowledgments in this manner. We hope we shall have it in our power to reciprocate this, as we shall be glad to do all similar favors. New and valuable fruits not already in our possession will at all times be particularly acceptable, and we shall be happy to give any article we have in return. The plants above noticed appear to thrive in our climate, and should they answer the description given by Col. O'F. and others, of which we can have little doubt, from the respectability of the gentlemen, they certainly will be a great acquisition to our fruits and ornamental shrubs. Of the two first, we can spare a few fine plants to our customers. The Arkansas plum grows from four to six or eight feet high, and the sand cherry from three to five feet.

SINCLAIR AND MOORE.

TO RESTORE SOUR WINE.—Take dry walnuts, in the proportion of one to every gallon of wine, and burn them over a charcoal fire; when they are well lighted, throw them into the wine, and bung it up; in 48 hours the acidity will have been corrected.—[Horticultural Register.]

[*From the American Railroad Journal.*]

BOSTON, Dec. 17, 1832.

COMMON ROADS.—The remarks regarding drainage in my last, (see No. 50, Railroad Journal,) apply more particularly to a flat country, though the same principle necessarily obtains every where. When the road winds along the side of a hill, and is formed by what is technically termed side-cutting, the water from the upper side will obviously acquire a velocity sufficient to carry it over any ordinary rut, to the centre and opposite side of the road. To obviate this objection, the cross section of such a road has sometimes inclined slightly towards the hill side, with the intention of at the same time retarding and returning the water into the drain always formed, of course, on that side of the road next the hill. I have observed, however, that any inclination which can thus be given, consistent with the safety of carriages, is of little effect. The better way is either to cut small ruts on the face of the hill, and altogether beyond the slope of the road, or to raise a small parapet of earth 8 or 12 inches in height, on the proper side of the ditch; the first when applicable is the better and more general method. Wherever the inclination of the road or any other cause gives an undue velocity to surface water, care must be taken that it find no vent to the body of the metal; it will otherwise, as I have several times observed, in the course of a few hours soften the most perfect road, and besides the inconvenience it occasions, will so effectually cleanse the gravel as to retard very much the after consolidation of that portion of the way. In flat countries there must, of course, as much attention be paid to creating an inclination for the water, as in this case to retarding it.

I perceive that you have lately been embodying the substance of Mr. M'Adam's evidence into your Journal. I was not aware of this when I last wrote, otherwise I should not have troubled you on the subject. As Mr. M'Adam's remarks, however, are very different, and in many cases not immediately applicable here, I do not regret having thus at the risk of some repetition recalled it to your attention,

Having by that rigorous system of drainage which I have endeavored to inculcate, paved the way for further improvements, the surveyor may direct his attention to the formation of the surface of the road. It will always be of great importance that the foundation upon which the material of the road rests, *be not below the top or edge of the drains.* I advert to the method sometimes pursued of cutting a trough for the material, obviating in some measure the good effects of drainage, and retaining as far as mismanagement can retain, the damp or water which we are seeking to disperse. Where this method is already in existence, frequent ruts from the sides, at right angles with the roadway to the ditches, will in some measure remove the defect, and the attention of the surveyor will be directed, in the after distribution of his materials to a gentle raising of the centre. Generally the roadway at present is clothed with massy stones, and sometimes, as the case may be, pieces of natural rock. The former ought to be removed; the latter leveled, or the surface of the road raised as may be most convenient. The holes from which these boulders have been taken will be filled with gravel, and a little attention paid to smoothing it until it has become properly consolidated. All stones, large and small, which do not come properly under the denomination of gravel, ought to be removed. This will cause some trouble in the first instance, but a world of relief afterwards. Their very being at present creates ruts where otherwise none would have been found. The height to which they raise the passing wheels gives them an impetus in descending, probably ten times greater than would be the ordinary effect of a carriage running on a smooth road. The materials are thus loosened and disturbed, the body of the road penetrated, and an escape afforded to the clay or earth which may be lying in reserve. I will endeavor, by'-and-bye, to form some estimate of such improvements, and I anticipate being able to prove that the expense of the good road will ultimately be less than that of the bad one. Much will depend upon the qualities of the gravel (I am talking of gravel roads at present) which may be used. River gravel, generally speaking, ought to be altogether discarded, and gravel from inland beds to be completely sifted of the earth which accompanies it. It can never be cleared entirely of earth, and when sifted to the greatest advantage there will always remain sufficient to assist in the proper and active binding of the road. The first species of gravel is too clean, the latter too full of earth. The nature of gravel being water-worn and rounded of all asperities, renders a second substance indispensable to its acquiring compactness within a requisite time. The first would consolidate, but not until, in consequence of coarse weather or other means, it had acquired from the bottom or sides of the road the necessary proportion of earthy particles, and having seen it used, I am aware that it may remain for months a very fatiguing and heavy road. Mixing it with a slight quantity of earth might in some measure remedy the defect, but I apprehend the two substances would hardly assimilate so closely as when found so disposed in their natural beds. In sifting gravel, different sized sieves, standing at an inclination of 30 or 40 degrees before the workman, will be found convenient. One for separating all stones, properly so called, from the mass, and another for separating from the gravel so procured, the loose earth: these two objects ought to be strictly enforced. Any slovenness in this respect will be productive, as will be found, of four-fold trouble afterwards. The time spent in this portion of the work must never be grudged, since it will certainly be productive of much more than proportional beneficial effects. The placing of large stones or obstacles of any kind on the body of the road, while the material remains soft, is a clumsy and dangerous expedient when it can be avoided. Raking up the wheel tracks daily would be found much more efficient, and one man or a neighboring farmer, if he understood his own interest, could manage several miles with ease till it was consolidated, which would obviously occur much sooner by this method than by the other. In the former case the carriages are directed into particular channels; in the present, they have no inducement to press either side.

S. D.

[*From the London Mechanics' Magazine.*]

DOMESTIC SELF-ACTING PUMP.—Sir: I am desirous of knowing whether any method has been used to apply the force of a small stream of water, having a fall of about 60 or 70 feet, by hydraulic pressure to raise a large portion a less distance. I want such a force to produce power by raising a portion of water about six or eight feet in height, into a water wheel, by a stream about 300 yards distance, having a fall as above. It will be seen from the subjoined, from the Imperial Magazine, that such a method has been tried on a small scale with success.

I remain, Sir, yours, respectfully,

A. B. C.

"That such a pump is perfectly applicable to all domestic purposes is proved by the fact of a very small one having continued working for three months without being touched, raising about two tons of water in 24 hours; it acts entirely without friction, and by its means, the rain water collected at the top of the house will pump up a corresponding quantity of water from a well as deep as the house is high.—Its principle depends upon the alternate filling and emptying of four reservoirs with air and water by means of pipes and valves: invented by Jas. Hunter, Esq. of Thurston, in Scotland—the principle of which is to raise water above the original reservoir by the descent of a certain portion of it."

[From the Knickerbacker.]

TO A MILD DAY IN MID-WINTER.

Why art thou come, bright day, so soon,
With thy balmy breath, like a breeze in June?
Thou hast journeyed far from a southern clime
Where the orange blooms and the tender lime;
Where buds and the full blown rose are seen,
In groves leaf-robed in their summer green;
Hast flown from the Indian land, where flowers
Perennial blush in the myrtle bowers,
To linger awhile mid snows that lie,
On cold bleak hills 'neath a wintry sky.

The herbs are hid in the trackless field,
The pebbly brooks and the springs are sealed;
No sparkling waves by the river's brink,
Go murmuring by where the fawn would drink;
No music bursts from the leafless grove,
Not even the red-breast's song of love;
Yet thou art here, like a wanderer come
To look once more on his ancient home;
To bide for an hour—a noon-day guest,
And hie him away ere the time of rest.

Thou wilt not stay till the wild flowers blush,
Till fountains forth to the sun-light gush;—
But when from the wood-crowned hills are heard
The streamlet's music, and the voice of bird,
Thou wilt come again with thy sunny smiles,
On wings of gold from the ocean isles.
Thou lingerest not—for the chilly blast
And cold white clouds are gathering fast;
But, oh! return in the early spring,
And with thee its green and its garlands bring.

NEW-YORK FARMER.

FEBRUARY 1, 1833.

ERRATA.—In the article entitled "Properties of Vegetables," &c. page 12, paragraph 3d, 3d column, for *decision* read *precision*; towards the end of the same paragraph, for *flowing* read *flowering*; paragraph 4th, respecting the very superior pumpkin, for *first*, read *fruit*.

POMOLOGICAL SOCIETY.—We hope our readers who reside in the counties adjoining the Hudson will attentively read the article under this head at page 43; and that those of them who take an interest in the pleasing and important subject to which the writer refers, will promptly close with the proposition.

ICE.—This is the season for farmers to collect and house their ice. Almost every farmer could, with very little expense, enjoy the luxury and profit of ice in the summer. Piled up in the cellar, and well covered with non-conducting substances, with gutters or drains to carry off the melted ice, will answer in absence of more suitable houses. Ice should be housed when the thermometer is below freezing point. Although water in the act of freezing suddenly parts with 140 degrees of caloric, still it is advisable to have the thermometer considerably below freezing point, on account of the air in the ice, and the liability to be housed in a melting state. The ice should be packed very close, and, if practicable, water should be poured into the crevices, provided the thermometer in the house is below freezing point.

COMMITTEE ON AGRICULTURE IN THE LEGISLATURE OF NEW-YORK FOR 1832-3.—In the Senate, Messrs. Halsey, Gere, and Cropsey. In the Assembly, Messrs. Skinner, Finch, Kennon, Sherman, and Prendergast.

In the Senate of the United States, Messrs. Seymour, Brown, Robinson, Tipton, and Waggaman. In the House of Representatives, Messrs. Root, McCoy, of Va. Smith, of Penn. Chandler, Wheeler, McCoy, of Penn. and Tompkins.

AGRICULTURAL SOCIETIES IN NEW-YORK.—It affords us no ordinary pleasure to have tidings, by almost every mail, of an increasing disposition in favor of these associations—associations that are, we trust, destined not only to sustain, but to advance the relative pre-eminence of this empire State. The following article we copy from the Syracuse Argus, of the 24th ult. The members of the General Committee of the State Society have acted their part well, and we hope they and the other members of the County Society will have the pleasure of beholding, as the fruit of their labor, the advancement of their fellow-citizens in wealth, refinement and happiness.

ONONDAGA COUNTY AGRICULTURAL SOCIETY.—Pursuant to public notice, a meeting was held yesterday in this village, by which a County Agricultural Society was instituted, and the following persons were elected officers of said Society:

President—Dan Bradley.
First Vice-President—T. M. Wood.
Second Vice-President—V. Birdseye.
Secretary—V. W. Smith.
Treasurer—O. R. Strong.
Auditor—I. De Blois Sherman.
Committee on Agriculture—John Sprague; Sylvanus Tousley; David Monro.
Committee on Horticulture.—James Bradley; Daniel Kellogg; Curtis Moses.
Committee on Domestic Manufactures and Household Acts—Azariah Smith; Nathan Monro; Otis Bigalo.

STATE AGRICULTURAL SOCIETY.—By the following notice it will be perceived that there is a pleasing evidence that the subject of the improvement of agriculture continues to receive increasing attention. The delivery of Lectures during the several days which the Society will continue in session, will, we are well persuaded, excite an interest and impart a stimulus that will be felt throughout the state.

NOTICE.—The annual meeting of the New-York State Agricultural Society will be held at the Capitol in Albany, on the 14th February next. The meeting will consist of members and delegates from the several County Societies, and from Horticultural Societies, and of gentlemen who are desirous of aiding the objects, and of becoming members of the Society.

The Executive Committee have taken measures to have Lectures delivered during the meeting of the Society, on the Sciences as connected with Agriculture and Practical Husbandry.

P. S. VAN RENSSELAER, Secretary.

Printers in the State are requested to give this notice an insertion in their respective journals.

NEW-YORK HORTICULTURAL SOCIETY.—By the following Annual Report of the Inspecting Committee, our readers will perceive that the Society has given the public a short though not altogether an uninteresting account of its doings. The simple fact that the exhibition of Dahlias was well attended, shows that the inhabitants of this city have taste to admire the beautiful, and are ready to give countenance and support to any creditable preparations made for their gratification. This Society, from the pleasing nature of the objects to the improvement of which it is devoted, is a favorite with the public. The enterprising members should be encouraged to make redoubled efforts.

At a special meeting of the Horticultural Society, held on Tuesday evening, January 8th, the Inspecting Committee made the following Report:

The Inspecting Committee of the New-York Horticultural Society having now concluded the duties belonging to their appointment for the past season, beg leave to report:

That they carefully examined and compared the various articles presented before them at their weekly meetings and otherwise, and have unanimously adjudged the Vegetables, Fruits, and Flowers, hereafter mentioned, to be worthy of the premiums offered by the Society. They accordingly recommend that the same be awarded to the parties named in the list annexed hereto.

Your Committee, at the close of their labors, take occasion to state, with sincere regret, that their weekly meetings during the past year have lost much of their interest in comparison with the attractions they presented in time past.—The number and variety of plants, flowers, fruits and vegetables, exhibited at these meetings have greatly diminished. A less numerous attendance of the members has been the consequence; and while your Committee are under peculiar obligations to those who have so constantly and so faithfully sustained them by their presence, and by their contributions, they would suggest to others, that the character, the usefulness and the prosperity of the Society, depend in a great measure upon the support given to the proceedings of its Inspecting Committee.

At the appointment of your Committee, they were instructed to make arrangements in the course of the summer for a public exhibition of ornamental plants; but in attempting this part of their duty, obstacles were presented, and unexpected difficulties suggested, which rendered the measure at that time impracticable. Still your Committee would observe that these difficulties are overcome every season by other Horticultural Societies. Early in October they attempted to call the attention of the public to a single species of flower—the *Dahlia*; and, although its season is nearly passed, the friends of floriculture were invited to contribute such specimens of that plant as still remained with them in flower. The variety, the beauty, the splendor of that exhibition, gave universal satisfaction to the numerous visitors at the Society's rooms; and the interest excited on that occasion warrants your Committee in believing, that such opportunities frequently presented would have a beneficial effect on the public taste, and further the objects of the Society. In their opinion, at least, three such exhibitions might without difficulty be prepared in the course of the season;—one in May, for hyacinths, tulips, auriculas, and other spring flowers: a second in June, for roses, carnations, &c.; and a third in September, for dahlias, asters, and autumnal flowers, as well as the fruits and vegetables of that season of abundance.

During the past year our city was visited by an unprecedented calamity—a disease, inexplicable in its nature, its origin, or its remedy, dispersed the members of the Society, and suspended the meetings of your Committee for a time. In addition to the privations of this gloomy period, the medical advisers of the public recommended a total abstinence from nearly all the fruits and vegetables then so abundant in our markets. The fatal doom consequent upon eating the forbidden fruit of Eden was denounced to follow the use of the peach, the plum, the melon, and the grape. This will ac-

count in some degree for the want of variety in our autumnal exhibitions, as well as for omitting to celebrate the annual festival of the Society in the usual manner. Nor did your Committee visit the vineyard of Mr. Loubat, as recommended by the Society. Having received no special notice from its owner to do so, they are unable to communicate any information on that interesting subject—the cultivation of the grape.

PREMIUMS AWARDED.

To Mr. Fairbairn, for Cauliflowers.
N. Dick, for Cauliflowers.
A. Hyslop, Brocoli, Peas, Bush Beans and Strawberries.
George Still, Brocoli and Celery.
John Curr, Potatoes and Cucumbers.
Wm. Neale, Rhubarb and Strawberries.
Mr. Hobbs, Cucumber.
Thomas Hogg, Cherries, Camelia, Roses, Geraniums, Polyanthus.
Charles Oakley, Gooseberries.
James McBlair, Grapes.
Alexander Smith, Apples.
Michael Floy, Camelia.
Wm. Wilson, Peonies, Pinks and Roses.
Thos. Kinnersley, Hyacinths.

List of Premiums of the New-York Horticultural Society, for the year 1833.

FLOWERS.

For the best 6 Hyacinths	$2
Do. 6 Pinks	2
Do. 6 Carnations	2
Do. 12 Dahlias	2
Do. 12 Tulips	2
Do. 12 Garden Roses	2
Do. Polyanthus	2
Do. White-eyed Auriculas	2
Do. and greatest variety of Flowering Shrubs	3
Do. do. of Perennial Flowers	3
Do. new sorts of Geraniums	2
For the first best variety of Seedling Camelias	3
For the finest boquet of Flowers presented during the month of June next	2

FRUIT.

Strawberries, for one pint of the best, new variety	2
Raspberries, do. do. do.	2
Currants, do. of any color	2
Cherries, for the best two dozen, new sort	2
Gooseberries, for the best twelve	2
Pears, for the best six, new sort	2
Plums, for the best six, new variety	2
Early Peaches, for the best six freestones	2
Late Peaches, for the best six freestones	2
Nectarines, for the best six freestones	2
Do. for the best six clingstones	2
Grapes, white, for the best two bunches raised under glass	2
Do. black do. do. do.	2
Do. white, for the best two bunches raised in the open air,	2
Do. black, do. do. do.	2
Do. of any other color,	2
Melons, for the best pair of green fleshed,	2
For the best method of preserving fruit,	2

VEGETABLES.

Cauliflowers, for the best two heads of early,	2
Do. do. of late,	2
Cape Broccoli, for the best two heads,	2
Lettuce, do. do.	2
Cabbage, do. do. of early,	2
Peas, for the earliest quart in pod, raised in the open air,	2
Lima Beans, for the earliest 2 quarts in pod,	2
Cucumbers, for the finest early frame,	2
Celery, for the best,	2
Carrots, for the best early,	2
Rhubarb, blanched, for the best,	2
Sea Kale, for the best,	2
Potatoes, for two quarts of the largest and best, forced,	2

Additional premiums will be awarded at the discretion of the Inspecting Committee for such fruit, vegetables, or flowers, which may be exhibited, and which may be judged by that body worthy of a premium, whether they be produced by a member of the society or otherwise.

Published by order of the Society.

E. WADE, Jr., Secr'y.

New-York, Jan. 29, 1833.

WEATHER AND CROPS ON LONG ISLAND.—*Mr. Fleet,*—Sir: I winter between five and six hundred sheep, and up to this date they have been abroad without an arm-full of fodder. In no former winter have I been able to keep them out so late. My wheat, (though it has had no protection from snow,) looks extremely well, and will, I suspect, when harvest arrives, serve to strengthen an opinion which has for some years been growing up in my mind, that *snow* is by no means necessary to good wheat crops. —Our wheat and oats which we are now thrashing prove to be very fine—yielding largely to the acre, and weighing well. How far the cold weather of May and June will go in accounting for this, I leave to philosophers to determine. It may be worth your recording that, on the 28th May, the thermometer in this vicinity got down to 38°, and that up to the 7th June, fires and winter clothing were necessary to comfort. My Indian corn was stationary in its growth for nearly three weeks; but (owing probably to its proximity to the Sound) escaped frost. The corn a few miles inland was much injured. Queen's County, Jan. 21, 1833.

NEW-YORK VEGETABLE MARKET—Jan. 29.—Apples, Russets, $1 75 to $2 00; Newtown Pippins, $3 00 per barrel.—Turnips, common, 20 to 25 cents; Russia, 37½ cents per bushel. Beets, 31 to 37½ cents per bushel.—Parsnips, 31 to 37½—Carrots, 37½—Red Onions, 62, white do. 75 cents per bushel.—Potatoes, 31 to 37½; Kidney, 44; Mercer, 37½.—Cabbages, $2 to $3; best do. $3 to $4.—Hickory Nuts, 88 cts. to $1.—Black Walnuts, 50 cents per bushel.—Chesnuts, $1 25 per bushel.—Cauliflower and Broccoli, $1 per dozen.—Spinnage very dull.

REMARKS.—Vegetables are very low; Cauliflower, in particular, is remarkably reduced in price.

NEW-YORK CATTLE MARKET—Monday, Jan. 28.—The market this day was well attended, and sales were brisk at a trifling advance on last week's prices. 500 head of beef cattle were offered, of which 400 were sold, at an average of $6¼ per cwt.

Cows and Calves.—A few were offered, but no sales effected worth quoting.

Sheep.—There has been a fair supply in market, and sales were good. 1 lot from West-Chester sold at $9½. Several lots of prime, sold at from $4 to 5; good do. from $3 to 3¾; middling do. from $2 to 2¾. About 1500 were sold in the whole.

FUEL.—Coal—Liverpool, per chaldron, $9 50 to $10; Sidney, 9 50 to 10 50; Virginia, 8 50 to 9 50; Schuylkill, per ton, $9 to $10; Lehigh, 8 50 to 9; Lackawana, 8 to 9.

Wood—Hickory, per load, $2 50 to $2 75; Oak, 2 12½ to 2 25; Ash, 2 00 to 2 12½; Pine, 1 50 to 1 75; Chesnut, 1 62½ to 1 75; Maple, 1 75 to 2 00.

BRIGHTON MARKET, Jan. 21.—At market this day 370 Beef Cattle, 520 Sheep, and 195 Swine. 125 Swine were reported last week.

Beef Cattle.—The quality of cattle not so good as last, but rather better prices were obtained for the same quality. We notice 6 or 8 taken for $6. We quote extra, at $5,25 *a* 5,50, prime at $5; good at 4,50 *a* 4,75.

Barrelling Cattle.—Mess at $4; No. 1, at $3,75.

Sheep.—A large proportion were ordinary, and a part were at market several weeks since; we did not obtain the price of any lot.

Swine.—One lot about 30, two-thirds Barrows, were taken at 4½c; at retail, 5 for sows, and 6 for barrows.

BRIGHTON MARKET, FOR THE YEAR 1832.

ESTIMATED SALES.

First Quarter, ending March 26—		
5069 Beef Cattle	-	$190,087 50
453 Stores	- -	10,193 50
6191 Sheep	- -	18,573 00
515 Swine	- -	2,575 00
		$221,429 00
Second Quarter, ending June 25—		
3247 Beef Cattle	-	$126,374 00
349 Stores	- -	8,725 00
4316 Sheep	- -	9,711 00
3303 Swine	- -	17,340 75
		$162,150 75
Third Quarter, ending September 24—		
6736 Beef Cattle	-	$212,184 00
1972 Stores	- -	29,570 00
38521 Sheep	- -	73,960 32
1577 Swine	- -	3,154 00
		$318,868 32
Fourth Quarter, ending December 31—		
25755 Beef Cattle	-	$579,487 50
7112 Stores	- -	92,456 00
51555 Sheep	- -	103,110 00
9302 Swine	- -	20,922 00
		$795,975 50

RECAPITULATION.

40,007	Beef Cattle -	$1,108,133 00
9,886	Stores - -	140,943 50
100,583	Sheep - -	205,354 33
14,697	Swine - -	43,998 75
		$1,498,429 58

1830,		1831.	
Beef Cattle	37,767	Beef Cattle	33,922
Stores	13,685	Stores	15,400
Sheep	132,697	Sheep	84,453
Swine	19,699	Swine	26,871

LONDON CORN EXCHANGE, Dec. 22.—The week's arrivals of both Grain and Flour are very moderate. The buyers who attended today showed very little disposition to purchase. For a few fine parcels of Wheat more money was asked and obtained, but such samples as are offered meet no improvement. Barley, Beans and Peas remain as on Monday. The Oat trade remains dull at Monday's terms. In Flour no alteration.

SPECIMENS OF NATURAL HISTORY.—Mr. H. F. Dickehut, Corresponding Secretary of the Maryland Horticultural Society writes, "on the last page of the January number, I observe a notice of Mr. Perrine concerning Herbaria, and collections of Natural History. Will you be kind enough to write me a few lines of information on this subject, as to terms, &c. I know of several gentlemen here who would be pleased with the opportunity thus afforded of forming cabinets." We have written to Mr. D. In answer to the above inquiries and that of Mr. D. of Newburgh, we state that we have no particulars as to price, &c. but are well persuaded that the charges will be moderate, and that the most liberal reciprocations will be made. Dr. Perrine's objects are to excite an interest in the tropical productions of Spanish America, and to meet some portion of the *expenses* attending the collection and preservation of the specimens.

SUGGESTIONS FOR THE IMPROVEMENT OF THE NEW-YORK FARMER.—Dr. C. of Madison co. in writing for the Farmer to be sent to him, advances some suggestions. We are always pleased to hear the sentiments of our subscribers, and we shall endeavor to profit by their hints. He recommends, "from time to time, accounts of the sales of Wool in Boston, New-York, and Philadelphia, with such remarks as will give a full view of the state of the Market —also, of Cattle, Sheep, Swine, Beef, Pork, and other articles of farming productions. He considers highly interesting to Farmers, especially to Wool-growers, Prices Current of the various qualities of Broadcloths, Cassimeres, Satinets and Flannels."

PEACH TREES.—Timothy Matlock, esq. plants his Peach Pits two inches deep in good garden mould. When the plant rises high enough to shoot out side branches, he cuts them off, taking great care not to injure the leaf that stands at the base of each side shoot. The vigorous and uninterrupted growth of the tree depends on the preservation of these leaves. He recommends the trees to be washed with pure cool water by the aid of a brush or coarse cloth, and sand to be heaped up around the tree to keep off the worm.

SCUPPERNONG GRAPE.—This grape is said not to succeed by cuttings, but by layers and graftings. Mr. Sidney Wells, of Brinkleyville, N. C. observes, in the American Farmer, that "about two years since, I visited Capt. Burlingham, near Louisburg, N. C. having understood he had cultivated the Scuppernong with great success. He showed me twelve vines, extending over a quarter of an acre, suspended on lath or scantling, over frames, supported by posts about eight feet high, from which the year preceding he had five hundred gallons of wine, (worth as many dollars,) besides having abundance of fruit from the same vines for himself and neighbors. Some barrels he had made with, and some without spirits. One barrel saved without brandy, made of first gleanings, took twenty-one pounds of sugar to make the must suspend an egg on its side. But a barrel made of later gleanings took but seven pounds of sugar. His method of gleaning the grapes was simply this. A sheet was suspended underneath and the frame above was shaken with a forked stick, when all the ripe grapes descended—and so repeated the process as others ripened. He made the wine by mashing the grapes by hand or otherwise, putting them in a sack made of cotton bagging and then pressing as for cider. He mentioned he had safely sent the grapes to friends in Washington city, and other distant places, in boxes, after they were picked from the vines by hand. But I am becoming tedious."

SILK WORMS.—The editor of the American Farmer, after stating that there is a first rate silk reeler in this country seeking employment at moderate wages, gives the following valuable information on the best mounting materials:

"The best material for the worms to mount upon that has ever yet been suggested is common broom corn. The tassel of the broom corn is to be cleared of the seeds by an iron comb or some similar apparatus; the stalk cut off just below the bottom or junction of the straws; so much of the tops of the straws cut off as will make them of proper length to set between the shelves with the top spread out and pressing against the upper shelf, and the bottom resting on the lower shelf, thus forming an object considerably resembling a small tree. As many of these may be put into each shelf, as will accommodate all the worms on it. This is *our* mode, and though we have resorted to all others suggested in the books as practised in Europe, we have found none to answer so good a purpose, to say nothing of the simplicity and economy of it."

ROOTS OF GRAFTED TREES.—A writer in the New-England Farmer, under the well-known signature of B. says,

"There is a fact in vegetable physiology which to me is inexplicable, and which I should be very much obliged to any of your correspondents for an explanation—it is this: It is well known to nurserymen that the roots of a grafted or budding tree take the habits of the scion, that is, they are numerous and ramified, horizontal or deep, according to the variety taken, and generally conform in their direction and volume to the shape and abundance of the top; and yet the sprouts which spring from these roots invariably, I believe, take the character of the original stalk. I will state a case: bud a peach on a plum-stalk at the surface of the ground, when it has but a few inches of root, the bud not only gives a character to the branches and fruit, but apparently to the roots which succeed, and which are alone produced by the sap elaborated in the peach leaves, and yet the sprouts which shoot from the roots will be plum sprouts. My wonder is why the roots should retain the character of the stock, after they have been enveloped and seemingly lost in the growth produced by the scion. The quince and the paradise apple are the only cases that I remember in which the character of the roots are not materially changed by the scions engrafted into them."

We presume the question is the same as that which would require the cause of the scion or graft preserving its identity or producing fruit like its parent stock. When the scion is grafted on a stock whose roots have acquired their natural habits, they influence the branches of the scion to such a degree as to cause them, in a very considerable measure, to assume forms and habits like those of their own variety or species. Although thus influenced, still grafts from these branches, we all know, continue their identity. It has been asserted that the stock does influence the fruit of the graft; we would inquire if it is not only when the roots have acquired their natural habits before the scion was inserted?

SAVING INJURED TREES.—Suppose one of our readers should have a valuable tree, which was a present from some endeared friend and it being seriously injured, he should save it and cause it to grow vigorously by reading the following article, would he not think himself abundantly compensated for the price he pays for our paper for a whole year?

"Mr. Knight, (florist and nurseryman, in the King's Road, Chelsea,) made the following successful experiment on a mulberry tree, which, except one very large branch, was either dead or decaying. When the sap had ascended, he barked the branch completely round near its junction with the trunk of the tree, and having filled three sacks with mold, he tied them round that part of the branch which had been barked, and by means of one or two old watering pots, which were kept filled with water, and placed over the sacks, from which the water gradually distilled, the mold in the sacks was sufficiently moistened for his purpose. Towards the end of the year, he examined the sacks, and found them filled with numerous small fibrous roots, which the sap, having no longer the bark for its conductor into the main roots of the tree, had thus expanded itself in throwing out. A hole having been prepared near the spot, the branch was sawn off below the sacks, and planted with them, the branch being propped securely. The next summer it flourished and bore fruit, and is still in a thriving state."—[Jesses' Gleanings in Natural History.]

STAKE FENCE.—It is often said that the expenses attending houses and fences make slaves of many farmers. The Genesee Farmer recommends the following kind of fence as economical, and which is often seen in various parts of the country:

In making stake fence, the timber for stakes should be cut seven feet and a half long, and split to about the size of common rails; they should be set in the ground about eighteen inches, and each pair of sufficient distance the one from the other to admit a rail between them. When the stakes are thus placed, a stone of sufficient size to raise the lower rail from the ground should be placed between them, on which to place the bottom rail, and proceed to fill up by placing the ends of the two adjoining lengths of rails alternately.—After the fence is about four rails high, a hole should be bored through the two stakes with an inch and a quarter auger, and a pin of good oak, or some other durable wood, drove thro' it, and the smaller end made fast by wedging. This pin should be placed so high that, as the stakes at the top of the ground will first fail, their length will be sufficient to allow them to be re-set; and the lower hole bored in them should be at a such distance from the ground as will prevent its being brought to the surface on the second setting.

There should be two of these pins put through the stakes, the upper one only calculated to support the two ends of the upper rails, which may be raised a little above the other, and thus a fence with six rails may be made the height of seven, when allowed to rest upon each other. Such fence requires less labor for making than post and rail, by about the amount required to hole the post and sharpen the rails —is equally as durable as post and rail, and not more liable to be blown down by high winds.

BULL-FROGS DESTROY CHICKENS.—Mr. S. S. Griscom writes in the American Farmer that it is well attested that the bull-frog, Rana pipiens, will destroy chickens.